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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-2
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 3-5
- NEUROBLASTOMAS AND CNS TUMORS..... 6-15
- LYMPHOMAS AND LEUKEMIAS..... 16-48
- OTHER SOLID TUMORS OF CHILDHOOD..... 49-50
- OTHER RELATED CLINICAL STUDIES..... 51-57

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. SARCOMAS WITH INTRACYTOPLASMIC FILAMENTOUS INCLUSIONS: DISTINCTIVE FORM OF INFANTILE 'ROUND-CELL' SARCOMA (MEETING ABSTRACT).

Gonzalez-Crussi F, Hsueh W
Department of Pathology, The Children's Memorial Hospital of Chicago, Chicago, IL
Lab Invest; 44(1):3P 1981

Undifferentiated sarcomas of infancy and childhood are tumors of difficult classification. The present study deals with four malignant tumors that shared the following features: (1) inception in early infancy or prenatal life; (2) uniform histologic composition of predominant monomorphous, round cells; (3) patterns of growth and dissemination consistent with sarcomatous origin; and (4) intracytoplasmic aggregates of filaments on ultrastructural examination. Two tumors were of renal origin, and seemed to correspond to the entity designated as 'rhabdoid' sarcoma by the National Wilms' Tumor Study (NWTS) classification. Morphologically similar sarcomas were

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also encountered in the liver and soft tissues, respective ly, in two additional patients. Histologic, histochemical, ultrastructural, and tissue culture studies were inconsistent with a rhabdomyogenic origin, and tentatively support the possibility of histiocytic origin, for these tumors. We conclude that infantile neoplasms of uniform round cells constitute a heterogeneous group of tumors with dissimilar prognostic expectations. Attribution of rhabdomyogenic origin to all eosinophilic, found, large-celled sarcomas, is unwarranted. (no Refs)

2. INTESTINAL LEIOMYOSARCOMA IN CHILDHOOD - CASE REPORT AND REVIEW OF THE LITERATURE.

Angerpointner TA, Weitz H, Haas RJ, Hecker WCh
(c/o Hecker) Dept. Pediatric Surgery, Univ. Children's Hosp., Lindwurmstr, 4, D-8000, Munchen, 2, W. Germany
J Pediatr Surg; 16(4,Suppl1):491-495 1981

A 4-yr-old boy with a leiomyosarcoma of the ascending colon was treated at our hospital. A multimodal therapeutical procedure consisting of both surgery and adjuvant chemotherapy was employed. The 14 previously published cases of intestinal leiomyosarcoma in childhood are reviewed. (Author abstract) (24 Refs)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

3. ANOMALOUS ERYTHROPOIESIS IN WILMS' TUMOR.

Forte G, Pannuti O, Amici G
Istituto di Chirurgia Pediatrica, I Facoltadi Medicina e Chirurgia dell-Universita degli Studi di Napoli, Naples, Italy
Rass Int Clin Ter; 61(1):27-31 1981

Erythropoiesis was studied in 41 children with Wilms' tumor. Erythrocytosis was found in 3/41 cases, and it was pronounced in 2/3. Insufficient erythropoiesis was found in 13 of the other 38 patients. The findings suggest that the erythropoietin levels should be determined in patients with Wilms' tumor. (12 Refs) (In ITA)

4. THE TREATMENT OF WILMS' TUMOR, IMPROVEMENTS AND NEW TRENDS. A STUDY OF 724 CASES TREATED AT THE GUSTAVE-ROUSSY INSTITUTE. 1952-1980.

Lemerle J, Tournade MF, Sarrazin D, Gerard-Marchant R, Rodary C, Fekete C, Voute PA
Departement de Pediatrie, Institut Gustave-Roussy, 94800 Villejuif, France
Arch Fr Pediatr; 38(5):329-334 1981

The surgical and radiotherapeutic treatment, with or without chemotherapy (actinomycin D alone or in combination with vincristine), of 724 patients (349 males, 375 females), with Wilms' tumors between 1952 and 1980 is described. During this period of time, recovery rates increased from 44% to 92%. Survivals without relapse rose from 38 to 86% during this period, indicating fewer metastases. Current research on the treatment of nephroblastomas is described. (16 Refs) (In FRE)

5. CLEAR CELL SARCOMA OF THE KIDNEY IN CHILDREN: A DISTINCT ENTITY.

Carcassonne M, Raybaud C, Lebreuil G
Sch. Medicine, Univ. Marseille, Marseille, France
J Pediatr Surg; 16(4,Suppl1):645-646 1981

Four cases of clear cell sarcoma of the kidney in children are reported. The spe cificity of the tumor is examined. The pathologic features, the clinical presentation, and the occurrence of bone metastasis are reasons to distinguish clear cell sarcoma from the Wilms' tumor group. The poor prognosis may be improved in the future by radical resection associated with polyvalent chemotherapy. (Author abstract) (10 Refs)

NEUROBLASTOMAS AND CNS TUMORS

6. COMPUTED TOMOGRAPY AND THE NEUROBLASTOMA-GANGLIONEUROMA SPECTRUM IN CHILDREN (MEETING ABSTRACT).

Pettersson H, Armstrong E, Harwood-Nash DC, Fitz CR, Chuang S
Department of Radiology, The Hospital for Sick Children, Toronto, Ontario, M5G 1X8, Canada
18th Congress of European Society of Pediatric Radiology, Oslo, Norway, May 20-23, 1981 The Society; :A1 1981

Between 1976 and 1980 seventy-seven children were admitted to HSC for diagnosis and treatment of either neuroblastoma or ganglioneuroma. Plain radiography, excretory urography and ultrasonography assisted in assessment of the mass. 58 patients [75 percent] had one or more body computed tomography (CT) scans of the chest and/or abdomen. 3 had orbital or head CT scans and 22 [30 per cent] had Metrizamide myelography and/or CT Metrizamide myelography. CT demonstrated the size, location, composition including calcification and various tissue components, and continuous and distant spread of the tumors. CT was also important for staging and follow up of subsequent treatment. 20 percent of this series of patients had intraspinal extension of the tumor, and our previous experience of metrizamide myelography in evaluation of paravertebral masses was substantiated. CT with vascular and intrathecal enhancement provides a spatial representation of the pathology in one image or a series of images better than plain radiography, urography, myelography and angiography alone or in combination. (no Refs)

7. BIOLOGIC DIFFERENCES BETWEEN NEUROBLASTOMA STAGES IV-S AND IV. MEASUREMENT OF SERUM FERRITIN AND E-ROSETTE INHIBITION IN 30 CHILDREN.

Hann HL, Evans AE, Cohen IJ, Leitmeyer JE
Inst. Cancer Res., Fox Chase Cancer Center, 7701 Burholme Ave., Philadelphia, PA, 19111
N Engl J Med; 305(8):425-429 1981

Seventeen patients (2 mo-4 yr old) with Stage IV neuroblastoma treated with vincristine, cyclophosphamide, and imidazole carboxamide, and 13 patients (1-10 mo old) with Stage IV-S disease who were untreated were investigated for serum ferritin and erythrocyte (E)-rosette inhibition. Fifteen of the 17 patients with Stage IV neuroblastoma had positive tests for serum ferritin determined by counterelectrophoresis (CEP); all 13 patients with Stage IV-S disease were negative. When levels were tested using radioimmunoassay (RIA), only 4/15 Stage IV patients who had positive tests by CEP had ferritin levels

above 400 nanog/ml, and 11 had levels between 128 and 376 nanog/ml. RIA revealed ferritin levels between 7.1 an d 106 nanog/ml in the 13 Stage IV-S patients. Of the 17 Stage IV patients, 12 had E-rosette inhibition of more than 15% and all 12 had increased serum ferritin by CEP. Of the five Stage IV patients with less than 15% inhibition, three had elevated serum ferritin. Of the 13 Stage IV-S patients, only one had E-rosette inhibition above 15%. These results suggest that Stages IV and IV-S neuroblastoma can be differentiated by serum ferritin determinations by CEP and by lymphocyte E-rosette inhibition. (26 Refs)

8. MULTIDISCIPLINARY TREATMENT OF MEDULLOBLASTOMA: A 5-YEAR EXPERIENCE WITH THE SIOP TRIAL.

Gerosa MA
Istituto di Neurochirurgia, Universita di Padova, 35100 Padova, Italy
Childs Brain; 8(2):107-118 1981

Treatment of 33 children with posterior fossa medulloblastoma were treated with the SIOP (Societe Internationale d'Oncologie Pediatrique) brain tumor regimen consisting of major surgical resection, extensive irradiation (5,000-5,500 R to the tumor, 3,500-4,000 R to the whole brain, and 3,000-3,500 R to the spinal cord), and combined chemotherapy with vincristine (1.0 mg/square meter (m2) for induction and 1.5 mg/m2, iv, weekly for a total of 8 courses over approx 48 wk) and lomustine, (100 mg/m2, po/wk for 8 wk over approx 48 wk). Of the 30 evaluable patients, 28 were still alive, with a mean actuarial survival of approx 28 mo. Of the survivors, the performance status was usually good (71.4% over 80 points). The rate of incidence of spinal lesions from radiotherapy was high: 32.1% of altered sitting-standing index, 25% of kyphoscoliosis. Endocrine deficiency was present in 14.3% of the patients. Mental or visual deficits, or the involvement of a cranial nerve, were not unusual. Cerebellar impairment was frequent. Leukopenia and thrombocytopenia were frequent and sometimes severe. Mild, transient liver toxicity occurred in nine cases, and four patients complained of signs and symptoms of toxic hepatitis. (30 Refs)

9. ADJUVANT CHEMOTHERAPY FOR MEDULLOBLASTOMA AND EPENDYMOMA USING IV VINCRISTINE, INTRATHECAL METHOTREXATE, AND INTRATHECAL HYDROCORTISONE: A SOUTHWEST ONCOLOGY GROUP STUDY.

van Eys J, Chen T, Moore T, Cheek W, Sexauer C, Starling K
Southwest Oncology Group, Operations Office, 3500 Rainbow Blvd., Suite 100, Kansas City, KS, 66103
Cancer Treat Rep; 65(7/8):681-684 1981

In a prospective, randomized, cooperative group trial, the value of iv vincristine and intrathecal methotrexate and hydrocortisone as adjuvant therapy to radiotherapy in children with medulloblastoma and ependymoma was evaluated. The data showed no improvement in the survival of such children when adjuvant therapy was given. (Author abstract) (6 Refs)

10. TREATMENT OF MEDULLOBLASTOMA IN CHILDREN: LONG-TERM RESULTS FOLLOWING SURGERY, RADIOTHERAPY AND CHEMOTHERAPY.

Mazza C, Pasqualin A, Da Pian R, Donati E
Dipartimento di Neurochirurgia, Ospedale Civile di Borgo Trento, I-37100 Verona, Italy
Acta Neurochir (Wien); 57(3/4):163-175 1981

Between 1960 and 1978 47 children with histologically proven medulloblastoma were treated with radiotherapy alone or the combination of radiotherapy and chemotherapy (lomustine or methotrexate in 1 patient) after surgery. There were 37 boys and 14 girls, aged 1-15 yr (mean age 8 yr). Total or subtotal removal was accomplished in 23 cases, partial removal in 16 cases, and biopsy alone in six cases. Thirty-seven patients received a case of radiotherapy to the neuraxis, 17 of whom also received radiation therapy to the cerebral hemispheres. Postoperative mortality was 22% (10 cases). Late mortality occurred in 22 cases (46%) with recurrence of tumor in 19, supratentorial metastases in one, hydrocephalus in one, and radiation necrosis in one. All 19 patients with recurrences eventually died, despite treatment. Fourteen patients suffered from metastases of medulloblastoma: 12 died from associated recurrence of tumor, one died from multiple supratentorial metastases, and one was still alive. Ten patients survived more than 4 yr after surgery. Survival for patients completing radiotherapy was 67% at 1 yr, 43% at 3 yr, and 27% at 5 yr; for those treated by radiation and chemotherapy after surgery, it was 60% at 3 yr. (46 Refs)

11. HYDROCEPHALUS AND INFRATENTORIAL TUMORS. INCIDENCE, CLINICAL PICTURE, AND TREATMENT.

Raimondi AJ, Tomita T
Northwestern Univ. Medical Sch., 303 East Chicago Ave., Chicago, IL, 60611
J Neurosurg; 55(2):174-182 1981

One may consider that the child with hydrocephalus complicating a primary brain tumor has two distinctly different diseases: 1) a neoplasm, and 2) hydrocephalus. The hydrocephalus may be obstructive, communicating, or (in the case of choroid plexus papilloma) hypersecretory. This paper presents the incidence, symptomatology, and management of hydrocephalus associated with infratentorial brain tumors in 156 children and with pineal tumors in 21 children, all treated by the first author during the period 1967 to 1979. Medulloblastoma was the most commonly encountered tumor. Of 117 children with cerebellar-fourth ventricle tumors, 110 had hydrocephalus, whereas 11 of 34 with brain-stem tumors and all 21 with pineal tumors presented with hydrocephalus. Of the total 143 patients with hydrocephalus, shunts were inserted before craniotomy in 123, with the interval between shunt insertion and craniotomy for tumor removal ranging from 1 to 21 days. Eighteen of these children required shunt revisions after craniotomy; 36 of 80 patients followed for 6 mo or more had their shunts permanently removed, but it was necessary to reinsert the shunt from 5 days to 13 mo later in 30% of these patients. Only 25 patients remained permanently s hunt-free. It is considered that the placement of shunts before craniotomy is justified by the extraordinarily high incidence of papilledema and visual impairment associated with hydrocephalus. 'Upward herniation' and dissemination of neoplastic cells through the shunting system are theoretical contraindications to precraniotomy shunt insertion, although the former is rare (3%), and there is no statistical evidence to support the latter. (Author abstract) (47 Refs)

12. CHEMOTHERAPY OF PEDIATRIC BRAIN-STEM TUMORS.

Fulton DS, Levin VA, Wara WM, Edwards MS, Wilson CB
(c/o Levin) Brain Tumor Res. Center, 783 HSE, Univ. California, San Francisco, CA, 94143
J Neurosurg; 54(6):721-725 1981

Forty-five children harboring brain-stem tumors were treated at the University of California, San Francisco, between 1969

and 1979. Pathological diagnoses were made in 19 patients. All patients received radiation therapy (RT). Thirteen patients received chemotherapy before, during, or immediately after RT. Twenty-four patients were treated with chemotherapy at the time of tumor progression, after initial treatment with RT alone. No statistically significant difference in time to tumor progression or survival was found for treatment with chemotherapy as an adjuvant to RT compared to treatment with RT alone followed by chemotherapy administered at the time of tumor progression. There were, however, more long-term survivors in the group that was first treated with chemotherapy at the time of tumor progression. There was no statistically significant correlation between survival and tumor pathology or location, although there were more long-term survivors among patients harboring low-grade gliomas and among patients with tumors confined to the midbrain. The authors documented the response of some brain-stem tumors to chemotherapy; however, cooperative controlled studies will be required to determine the optimum treatment for this disease. (Author abstract) (17 Refs)

13. PRIMARY SPINAL TUMORS IN INFANCY AND CHILDHOOD.

Giuffre R, Di Lorenzo N, Fortuna A
Inst. Neurosurgery, Rome Medical Sch., Rome, Italy
Zentralbl Neurochir; 42(2):87-98 1981

Of the 565 primary spinal tumors operated on at the Institute of Neurosurgery, Rome University Medical School up to December 1979, 61 (16 sympathetic tumors, 11 gliomas-ependymomas, 10 benign bone tumors, 9 sarcomas, 7 dysembryogenetic tumors, 4 neurinomas, 4 arachnoid cysts) were in children up to the age of 15 yr. Sixty percent were extradural and 40% intradural tumors. Distribution over the spinal column was uniform. The first 3 yr of life account for 34%. Motor deficits (86%), pain (63%) and sphincter disturbances (19%) were the most prominent complaints. The plain x-rays were abnormal in 65% of the patients, in a few cases permitting the identification of tumor type. CSF Protein was recorded in 50 patients and was abnormal in 42. Fifty-six patients had myelography and it was diagnostic in 55. CT-scan were performed in two patients and in both was diagnostic. Sixty-one patients had 63 neurosurgical interventions, the operative mortality being 1.6%. Ten patients required further surgery, retroperitoneal or mediastinal. Thirty-one patients received radiotherapy and 10 of these chemotherapy as well. Initial misdiagnosis and late referral to the neurosurgeon was common. Only 15 patients of this series presented minor neurological signs when first seen. And yet the longterm follow-up (mean 8.6 yr) in 43 cases shows that 77% of the patients lead a useful life. This prompts a less pessimistic attitude to the surgical treatment of spinal tumors in childhood. Microsurgical techniques permit today attempts at total removal even in intramedullary astrocytomas. To keep down the risk of post-treatment vertebral deformities it is important to limit laminectomy laterally and to insist on the wearing of an orthopedic jacket for the first few mo after operation. (Author abstract) (49 Refs)

14. SPINAL CHORDOMAS IN INFANCY. REPORT OF A CASE AND ANALYSIS OF THE LITERATURE.

Occhipinti E, Mastrostefano R, Pompili A, Carapella CM, Caroli F, Riccio A
Divisione di Neurochirurgia, Istituto 'Regina Elena', Viale Regina Elena 291, I-00161 Rome, Italy
Childs Brain; 8(3):198-206 1981

Spinal chordomas are extremely rare pediatric tumors. A 4-yr-old boy presented with a history of pain in the lower limbs, especially at night, and difficulty in walking for the previous 2 mo. The child developed paraplegia and areflexia. Evidence of a cerebrospinal fluid (CSF) blockage was noted and CSF protein content was 1,700/1,000 ml. Partial collapse of the body of the first lumbar vertebra (L1) and a lytic change in the right pedicle were noted on films of the dorsolumbar spine. Complete extradural blockage at the level of the twelfth thoracic vertebra (T12) was found. Laminectomy T12-L1-L2 was immediately performed and an epidural mass which had shifted the dural sac to the left was totally removed piecemeal. Function of the lower extremities was immediately recovered. Radiotherapy with 4,000 rads was locally administered. Nine mo later the child presented with disseminated lung metastases. Despite chemotherapy, the patient died 11 mo after the onset of the illness. The unusual site of the tumor along the vertebral column and the metastatic potential of this tumor are discussed and the few cases reported in the literature are reviewed. (41 Refs)

15. OPTIC GLIOMA IN CHILDREN. A RETROSPECTIVE STUDY OF 57 CASES TREATED BY IRRADIATION.

Kalifa C, Ernest C, Rodary C, Sarrazin D, Bloch-Michel E, Lemerle J
Service de Pediatrie, Institut Gustave-Roussy, rue Camille Desmoulins, 94800 Vil lejuif, France
Arch Fr Pediatr; 38(5):309-313 1981

The treatment of 57 children (26 males, 31 females; 9 mo-15 yr old) with optic gliomas is described. Of the 57 patients, 30 had neurofibromatosis. Of the 57 patients, 55 presented with visual disorders, 5 with endocrine disorders, and 27 had increased intracranial pressure. Type I gliomas were observed in 3 patients, Type II in 18, and Type III in 36. Twenty-five were operated upon (usually for exploratory purposes) but all 57 patients underwent radiotherapy with 50-60 grays. Of the 57 patients, 42 were alive at 2-19 yr, although 20 were blind and 26 showed signs of significant mental retardation. (21 Refs) (In FRE)

LYMPHOMAS AND LEUKEMIAS

16. CLINICAL AND CELL KINETIC STUDIES OF THE EFFECTS OF THE EPIPODOPHYLLOTOXIN VP16-213 DURING THERAPY OF REFRACTORY ACUTE NON-LYMPHOCYTIC LEUKEMIA (ANLL) (MEETING ABSTRACT).

Look AT, Dahl GV, Rivera G
St. Jude Children's Research Hospital, Memphis, TN
First International Symposium on the Podophyllotoxins in Cancer Therapy, July 8-9, 1981, South Hampton, England. Mead Johnson 51 pp., 1981.

After induction failure or relapse on primary therapy, ANLL has historically been highly resistant to reinduction chemotherapy. In order to evaluate a new drug combination for this condition, twenty-two children and young adults with ANLL failing to attain first remission (2) or in relapse (20) were treated with etoposide (VP16-213) plus 5-azacytidine (5AZ). Each patient previously had received many chemotherapeutic drugs, including anthracyclines and cytosine arabinoside. These patients received a course of VP16-213 (200 mg/m(2)) daily X 3 days, followed immediately by 5AZ (300 mg/m(2)) daily X 2 days, repeated every 1-2 days until the bone marrow became hypoplastic. After 2-4 courses, 18 patients demonstrated an objective anti-leukemic effect by achieving

marrow hypoplasia without evidence of blasts. Ten of these achieved complete remission after a median time of 45 days from the initiation of therapy, making this combination of VP16-213 and 5AZ the most active regimen we have tested for ANLL in relapse. To determine the effects of VP16-213 on leukemic blast proliferation in vivo, serial bone marrow aspirates were studied in 8 of these children. Bone marrow samples were obtained before, 4 hr and 20-24 hr after the first dose in all patients, and 20-24 hr after the third dose in 6 of the patients. The observed decrease of fraction of cells in S phase after 3 doses of the drug suggests selective kill of cells in S compared to G1/0. We conclude that the activity of VP16-213 against ANLL blasts can be demonstrated in vivo by the production of G2 phase arrest and reduction of marrow blast count with increased cytotoxicity for cells in S phase. In addition, this intensive combination of VP16-213 and 5AZ has shown clear evidence of effectiveness in patients with refractory ANLL, and thus may be useful during initial therapy. (no Refs)

17. CEREBROSPINAL FLUID (SFC) PROCOAGULANT IN ACUTE LYMPHOBLASTIC LEUKEMIA (MEETING ABSTRACT).

Komp DM, Clyne LP, Sullivan E
Departments of Pedistrics and Laboratory Medicine, Yale University, New Haven, CT
Pediatr Res; 15(4,Part2):580 1981

CSF of children with leukemia treated with cranial radiation an intrathecal methotrexate (IT MTX) can shorten the recalcification time of normal plasma. Graeber postulated that this procoagulant activity of CSF reflects release of phospholipid from the demyelinating effects of CNS prophylaxis. We have confirmed their findings and report further studies of CSF from 28 samples during CNS prophylaxis, 15 samples during treatment with IT MTX alone given for prophylaxis and 15 samples during IT MTX for active CNS leukemia. Procoagulant activity was equally demonstrable in the three patient populations. CSF from these patients shortened the recalcification time of normal plasma and plasmas deficient in factors VIII, IX, X or XII but not those deficient in II, V or X. Procoagulant activity was independent of chamber nucleated cell count but mononuclear cells could be demonstrated in all CSF samples by cytocentrifugation. Removal of cellular material from CSF by millipore filtration or a special modification of cytocentrifugation diminished the expression of procoagulant activity. Ultracentrifugation or millipore filtration of substrate plasma to more effectively remove platelets rendered the plasma insensitive to the CSF procoagulant. Similarly, complete glass or celite activation of platelet-containing plasma produced a plasma no further responsive to CSF. These observations suggest that the CSF procoagulant is a tissue factor (lipoprotein complex) associated with mononuclear cells in the CSF following IT MTX and reflect arachnoiditis rather than demyelination. (no Refs)

18. SIGNIFICANCE OF ELEVATED B2 MICROGLOBULIN (B2M) IN THE CEREBROSPINAL FLUID (CSF) OF CHILDREN WITH ACUTE LEUKEMIA (AL) (MEETING ABSTRACT).

Warrier IA, Ravindranath Y, Bedros A, Cejka J
Children's Hospital of Michigan, Detroit, MI, 48201
Pediatr Res; 15(4,Part2):579 1981

Recent reports have indicated that elevated CSF levels of B2m in AL patients may precede the cytologic diagnois of CNS involvement. This prompted us to reevaluate the CSF B2m levels obtained on 42 AL patients at CHM during the yr 1974-1975. All but 3 had acute lymphoblastic leukemia (ALL) 36 ALL children were receiving CNS prophylaxis consisting of intrathecal (IT) Methotrexate (MTX) and fractional radiation to the CNS (IMFRA) given at 10 wk intervals. CSF was obtained at the time of administration of IT MTX either for prophylaxis or for overt CNS relapse. The level of B2m in the CNS prophylaxis group (36) varied from 0.4 to 3.65 mg/l. 4 had elevated levels of B2m at a time when CSF was free of leukemic cells. Three eventually developed CNS leukemia 2 mo, 8 mo, and 4 yr later. The CSF B2m level at the time of overt CNS relapse in 6 AL children varied from 0.93-5 mg/l. This differed significantly from the CNS prophylaxis group. B2m level was 3 mg/l in 5/6. These data confirm the prior observations of others that CSF B2m levels are elevated during CNS relapse. Thus elevated levels may indicate impending relapse. Prophylactic IT MTX in itself does not appear to significantly alter the normal CSF B2m levels. (no Refs)

19. PROGNOSTIC VALUE OF MORPHOLOGY (FAB MODIFIED CLASSIFICATION) IN CHILDHOOD ALL (MEETING ABSTRACT).

VecchiV, Rosito P, Vivarelli F, Mancini AF, Pession A, Serra L
Clinica Pediatrica III, Unversita di Bologna, Bologna, Italy
Tumori; 67(2,SupplA):106 1981

We retrospectively analyzed marrow aspirate blood smears from 112 patients with acute lymphatic leukemia (ALL), all treated with the same chemoradiotherapy protocol, in order to test the prognostic significance of morphology such as the predictive index of remission induction, of the duration of complete remission, and of survival. The cytomorphologic classification we used calls for the adoption of the same cytomorphologic parameters proposed by the FAB group, but with different percentage limits for defining the various classes as suggested by Miller: 'pure' ALL-L1: greater than 90 per cent L1 blasts; ALL-L1/L2: 75-89 per cent L1 blasts; 'pure' ALL-L2: greater than 50 per cent L2 blasts; ALL-L2/L1: 50-74 per cent L2 blasts; ALL-L3: greater than 25 per cent L3 blasts. Results: patient distribution by subgroup: based on the FAB classification thus modified it has been possible to subdivide the patients into the following subgroups: L1, 40; L1/L2, 30; L2/L1, 14; L2, 25; L3, 3; relation of morphology to induction of complete remission (CR): the percentage of CR induction is significantly lower in patients with L2-type lymphoblasts greater than 25 per cent ('pure' L2, L2/L1) compared to patients with L2-type lymphoblasts less than 25 per cent ('pure' L1, L1/L2) (87 percent vs 98.5 per cent: p less than 0.05); relation of morphology to complete remission I: the number of marrow recurrences is significantly higher in patients with L2-type (L2, L2/L1) ALL than those with the L1-type (L1, L1/L2) (p less than 0.05); relation of morphology to survival: survival of patients with L1+L1/L2-ALL is significantly better than in patients with L2+L2/L1-ALL (p less than 0.05). The results confirm the validity of the cytomorphologic parameters utilized by the FAB classification, but indicate that in order to better define the various morphologic phenotypes of ALL and provide them with more accurate prognostic significance it is necessary to modify the percentage limits among th e different subgroups as proposed by Miller: L1-ALL, L1 blasts greater than or equal to 75 per cent; L2-ALL, L2 blasts greater than 25 per cent; L3-ALL, L3 blasts greater than 25 per cent. (no Refs) (In ITA)

20. HEMOSTATIC ABORNALITIES AND THROMBOSIS DURING L-ASPARAGINASE (L-ASP) THERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT).

Priest JR, Edson JR, Krivit W.
Department of Pediatrics and Laboratory Medicine and Pathology, University of Minnesota Hospitals, Minneapolis, MN, 55455
Pediatr Res; 15(4,Part2):585 1981

Because of unexpected thrombotic complications (12 cases of cerebral infarction, 4 cases of deep vein thromobosis), a comprehensive study of the hemostatic system was undertaken in children receiving L-asp as part of ALL induction therapy. Antithrombin (AT), plasminogen (PLAS), fibrinogen (FIB), prothrombin time (PT), partial thromboplastin time (PTT), thrombin time (TT), factor V (F-V), and platelet count were studied weekly for 7 wk in 12 children who received 9 doses of L-asp in wk 1, 2, and 3 of induction therapy. AT, PLAS, and FIB decreased progressively in all patients (pts) with minimums in 3rd wk of L-asp: mean of 12 pts: 70%, 52%, and 31%, respectively. Functional and immunological assays of AT and PLAS gave identical results. AT, and PTT, and TT were prolonged during wk 1-3 and normal or shortened by wk 5-6. Platelet production rebounded during wk 3-5 as marrow remission occurred. F-V rose steadily from 112% of normal, pretherapy, to 158% wk 5. These data demonstrate multiple abnormalities during ALL therapy: changes in AT, PLAS, FIB, PT, PTT, and TT are due to L-asp. The net effect is a tendency to thromobosis, which may be explained by deficiencies of AT and PLAS, rapidly rising platelet counts, and elevated F-V, despite concurrent severe hypofibrinogenemia. (no Refs)

21. TERMINAL DEOXYNUCLEOTIDYL TRANSFERASE-CONTAINING CELLS IN PERIPHERAL BLOOD: IMPLICATIONS FOR THE SURVEILLANCE OF PATIENTS WITH LYMPHOBLASTIC LEUKEMIA OR LYMPHOMA IN REMISSION.

Froehlich TW, Buchanan GR, Cornet JM, Sartain PA, Smith RG
(c/o Smith) Cancer Center, Univ. Texas Health Science Center at Dallas, 5323 Harry Hines Blvd., Dallas, TX, 75235
Blood; 58(2):214-220 1981

An indirect immunofluorescence assay was used to quantitate TdT-containing (TdT+) cells in the mononuclear WBC fraction of peripheral blood from normal subjects and patients with acute lymphoblastic leukemia (ALL) and lymphoblastic lymphoma (LL). In normal children (10) and adults (10), 0.036% +-0.014% (mean +- SD) and 0.030% +-0.015% TdT+ cells were found. In peripheral bloods from 10 children receiving chemotherapy for tumors other than ALL or LL, 0.040% +-0.039% TdT+ cells were found. Serial determinations were performed on 15 patients with ALL or LL who were in clinical remission. Eight of these patien ts remained in continuous remission and always had fewer than 0.11% TdT+ cells in their peripheral blood. Three patients who developed systemic relapse were found to have progressively rising numbers of TdT+ cells in their peripheral blood prior to clinical evidence of relapse. All three of these patients had greater than 0.1% TdT+ cells in their peripheral blood from 3 to 8 wk prior to clinical relapse. In three other patients, localized extramedullary relapse developed, but no trend was found on serial TdT determinations. Thus, the indirect immunofluorescence assay for TdT detects a small population of cells in normal peripheral blood. In patients with ALL, progressive increases above this normal level were associated with subsequent bone marrow relapse. (Author abstract) (17 Refs)

22. CHANGES IN INTELLECT AND IQ FOLLOWING COMBINED TREATMENT TO THE BRAIN (MEETING ABSTRACT).

Meadows AT, Gordon J, Littman P, Fergusson J, Moss K
Departments of Pediatrics, Phychiatry and Radiation Therapy, University of Pennsylvania School of Medicine, Philadelphia, PA
Long Term Normal Tissue Effects of Cancer Treatment, April 13-15, 1981, Bethesda, Maryland Committe for Radiation Oncology Studies; 1981

Newly diagnosed children with acute lymphocytic leukemia (ALL) who had achieved remission were tested prior to receiving radiotherapy (RT). They were retested 1-2 yr later and then 3-4 yr after that with the testing session including measures of other neuropsychologic functions. All of these children had been treated with 2400rad cranial RT, 6 doses of intrathecal methotrexate (MTX) and oral MTX along with the usual other agents for 3 to 5 yr. No major significant changes were noted between the first and second testing, but large differences, which could not be explained by chance or by the standard error of measurement of the tests, were seen after 3-4 yr. 12/18 children for whom 3 tests were available showed significant declines in IQ (10 or more IQ points). Those who declined were more likely to be younger than 6 yr at diagnosis and there appeared to be no relationship between duration or intensity of therapy and degree of reduction in IQ score. When other neuropsychologic functions were examined, a large proportion of the group were impaired in: visual perception and visual motor integration and several aspects of memory (visual and auditory sequence and auditory verbal). Four children with ALL who had received similar therapy, including intrathecal MTX but no RT, were tested many yr after diagnosis and none was found to have deficits. We speculate that these low doses of RT may be insufficient to cause normal brain tissue damage but they result in permeability changes in blood vessels. (no Refs)

23. POSITIVE CORRELATIONS OF LUKES-COLLINS CLASSIFICATION WITH IMMUNOLOGIC METHODS OF CLASSIFICATION AND CLINICAL FEATURES IN CHILDHOOD NON-HODGKIN LYMPHOMA (MEETING ABSTRACT).

Kelly DR, Crist WM, Pagab AH, Roper MA, Dearth JC, Castleberry RP, Flint A
Departments of Pathology and Pediatrics, University of Alabama School of Medicine, Birmingham, AL
Lab Invest; 44(1):4P 1981

Tumor tissues from 22 children with non-Hodgkin lymphoma (NHL) were classified according to the Lukes-Collins method by two pathologists independently (without knowledge of immune marker studies) in order to establish predictive ability of the former for immune phenotype. Clinical correlation with both pathologic and immunologic systems of classification were made. Routine histologic preparations were used for morphologic evaluation. Surface immunoglobulin staining and E rosetting with sheep RBC were performed to establish B or T cell origin. The Lukes-Collins classification was predictive of immune phenotype in 94 per cent of cases (18/19) in which a marker was present. The remaining marked tumor was T cell and was interpreted by Dr Robert Lukes as immunoblastic sarcoma of T cell origin and by us as 'histiocytic' lymphoma. Ten patients (all male) had B cell neoplasms which usually arose in the abdomen or jaw, six of which were interpreted as small noncleaved follicular center lymphoma, Burkitt type. Two patients were black, eight were caucasian, and the mean age was 9 yr. Nine patients had T cell neoplasms which usually arose in

the anterior mediastinum (7/9), occured in boys (8/9), with a mean age of 10 yr and were interpreted as thymic lymphoma (8/9). Early spread to marrow and/or CNS was common to both B and T cell neoplasms. We conclude that both Lukes-Collins classification and site of origin are predictive of immune phenotype in childhood NHL and that most neoplasms have immunologic markers in contrast to childhood lymphoblastic leukemia. (no Refs)

24. CESSATION OF TREATMENT IN CHILDHOOD ACUTE LYMPHATIC LEUKAEMIA.

Metz O, Stoll W
Universitats-Kinderklinik, Kochstr. 2, DDR-6900 Jena, E. Germany
Dtsch Med Wochenschr; 106(33):1026-1029 1981

Cytostatic long-term treatment for about 36 mo was administered to 18 children with acute lymphatic leukemia who were in long-term remission (43-98 mo). Prophylaxis of meningosis involved intrathecal 198Au colloid and methotrexate. Seven recurrences occurred during the long-term remissions: the bone marrow was involved 6x, leukemic meningosis occurred once. Five out of seven recurrences occurred within 1 yr of cessation of treatment. There were no complications induced by intrathecal radio-gold, such as the apathy syndrome or leukencephalopathy. Intrathecal methotrexate led to side effects before administration of radio-gold: encephalopathy twice, paraplegia once. Symptoms regressed completely in two children, one child with encephalopathy continues to have symptoms. All three children were given 198Au c olloid intrathecally thereafter which was tolerated very well. 198Au colloid represents an alternative for prophylaxis of meningosis with 60Co telecobalt irradiation in leukemias and non-Hodgkin lymphomas in childhood. (Author abstract) (21 Refs) (In GER)

25. ABSENCE OF ISOLATED TESTICULAR RELASPE (ITR) IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) WITH A REPETITIVE REINDUCTION PROTOCOL (MEETING ABSTRACT).

Ravindranath Y, Warrier R
Children's Hospital of Michigan, Detroit, MI
Pediatr Res; 15(4,Part2):585 1981

ITR has emerged as a major new problem in children with ALL both on and off therapy. Post treatment overt ITR up to 40% and a 10-30% incidence of occult ITR (by testicular biopsy) has been reported. Our data is in sharp contrast to the published reports of ITR. We have not encountered ITR as the sole initial relapse in any of 107 boys with ALL treated at out institution over an 11 yr perior. 10 patients had mediastinal mass at presentation and 41 had WBC greater than 20,000/mm3 at diagnosis. All were treated for 5 yr with identical chemotherapy. In addition, the last 68 patients received Intermittent Intrathecal Methotrexate (MTX) and Fractional Irradiation (IMFRA) CNS prophylaxis. Remission was induced with Vincristine (VCR) 2 mg/M2, 6-Mercaptopurine (6-MP) 2.5 mg/kg, and Prednisone (Pred) 60 mg/M2, and maintained with alternating cycles of biweekly oral MTX 30 mg/M2 for 6 wk, and VCR + 6-MP + Pred for 4 wk. IMFRA CNS prophylaxis is given every 10 wk. The median duration of complete remission was 18 mo for patients not receiving CNS prophylaxis, and it has not yet been reached in those receiving CNS prophylaxis. Five of 26 patients off therapy had relapse, but none in the testes. This suggests that an effective maintenance program such as the repetitive reinduction protocol described above prevents ITR and that testis may not be a sanctuary site. (no Refs)

26. RESULTS OF CESSATION OF TREATMENT IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKAEMIA.

Ekert H, Balderas A, Waters KD, Matthews RN
Dept. Clinical Haematology and Oncology, Royal Children's Hosp., Flemington Road, Parkville, Vic. 3052, Australia
Med J Aust; 1(10):523-525 1981

From 1972 to 1977, 55 of 161 children with acute lymphocytic leukemia discontinued treatment after being in continuous complete remission for 3 yr. A low total white cell count at diagnosis (less than 10 x 10(9)/L) was significantly associated with cessation of therapy, but there was no significant association with age or sex. Nine patients have relapsed, all but one within 50 wk of cessation of treatment. Testicular relapse occurred only in one patient. Actuarial complete remission rate with a median duration of follow-up of 140 wk was 76%, and there was no significant sex difference. It is proposed that the relatively good prognosis in boys after cessation of therapy may be related to limited use of steroids during induction chemotherapy. (Author abstract) (9 Refs)

27. GONADAL RECURRENCES IN ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) IN CHILDHOOD (MEETING ABSTRACT).

Pastore G, Saracco P, Cordero Di Montezemola L, Grazia E, Miniero R, Morgando MP
Instituti Pediatrici, Universita degli Studi di Torino, Torino, Italy
Tumori; 67(2,SuppIA):101 1981

Nine testicular recurrences (11 per cent) (TR) and 1 ovarian recurrence (1.5 per cent) (OR) were observed in 142 children (79 males, 63 females) with acute lymphoblastic leukemia (ALL) in its first complete remission (CR). The median time interval between CR and TR was 29 mo (range 12-43); at the time of TR 2 patients were off-therapy. In 1 child asymptomatic testicular infiltration was diagnosed by bilateral biopsy when treatment was stopped. Of the 9 patients with TR 8 had later recurrences (4 in the bone marrow, 3 meningeal and a second TR) and, of these, 7 are deceased with a median survival of 43 mo. A single patient is in hematologic remission 43 mo following TR. In 6 cases local irradiation (1800-2400 rads) and inductive chemotherapy were performed, in 2 cases orchiectomy and maintenance chemotherapy and in 1 patient chemotherapy alone. The interval between CR and OR was 72 mo and at the time of recurrence the child was off-therapy. The patient succumbed 13 mo after recurrence, after an initial response to therapy (local irradiation and induction chemotherapy). These findings confirm the unfavorable evolution of the disease following a gonadal recurrence, regardless of the treatment provided. The problem of a possible prevention with cobalt teletherapy was then discussed. (no Refs) (In ITA)

28. PROGNOSIS AFTER 3-YEAR SURVIVAL IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT).

Dunn NL, Russell EC
Department of Pediatrics, Medical College of Virgina, Richmond, VA
Pediatr Res; 15(4,Part2):576 1981

Eighty-two children (M:F, 47:35) with ALL were diagnosed between 1965-1975. Forty (49%) children, including 18 males, remained in complete continuous remission (CCR) at 3 yr. Between the third and fifth yr of therapy, 3 males and 3 females relapsed. The sites of initial relapse were the CNS in 5 (4 had received CNS prophylaxis) and a simultaneous marrow and testicular relapse in the sixth. Five were initially high risk pa-

tients by age (less than 2 or greater than 8 yr) or white count (greater than or equal to 30,000/mm (3)) criterian. One additional child died, in remission, of varicella complications. 33 patients (40%) remained in CCR at least 5 yr. They had received chemotherapy for a median of 61 mo. Follow-up x off therapy ranged from 6-178 mo (median of 36+ mo). One boy in this group subsequently relapsed in the marrow 16 mo after therapy ended. We conclude that the relapse rate of 17.5% (7/40) after 3 yr of CCR is comparable to the 20% relapse rate reported by St Jude Children's Research Hospital (NEJM 300:269, 1979), although our patients received therapy for an additional 2+ yr. Continuing therapy beyond 3 yr would therefore seem to subject patients to continued potential morbidity without improving ultimate prognosis. (1 Ref)

29. IMMUNODEFICIENCY (ID) AS A SUSCEPTIBILITY FACTOR FOR MALIGNANCY IN ATAXIA-TELANGIECTASIA (A-T): REPORT FROM THE IMMUNODEFICIENCY-CANCER REGISTRY (ICR) (MEETING ABSTRACT).

Filipovich AH, Spector BD
Department of Pediatrics, University of Minnesota, Minneapolis, MN
Pediatr Res; 15(4,Part2):577 1981

A-T is an autosomal-recessive syndrome characterized by neurologic abnormalities, variable ID, and a 10% prevalence rate of cancer at a mean age of 12.5 yr A-T patients have excess proportions of lymphoid tumors and selected carcinomas compared to types in the general population. A-T lymphomas resemble nonlymphoblastic childhood forms and differ from the immunoblastic sarcomas prevalent in Wiskott-Aldrich syndrome and combined ID. To test the hypothesis that ID predisposes to cancer in A-T, particularly to lymphoma, we selected cases in which serum IgA, and/or mitogen assays and skin tests were measured prior to or at cancer diagnosis. Immune function test results were available on 1/3 of ICR cases (36/108). Malignancies by type were lymphoma (44%), leukemias (22%), Hodgkin's disease (8%), and carcinomas (25%); these 72 cases. The prevalence of -/+ IgA and/or decrease in cell-mediated immunity (CMI) among these 36 patients paralleled the immune function patterns abstracted from detailed literature reports for 57 A-T patients without cancer. A-T cases with both -/+ IgA and decrease in CMI developed carcinoma and non-Hodgkin's lymphomas with similar frequency (29%, 36%, respectively). This retrospective analysis suggests that defects of humoral and/or CMI do not alone predict susceptibility to lymphoma or other cancer in A-T. (no Refs)

30. GROWTH IN HEIGHT AND WEIGHT IN CHILDREN WITH ALL (MEETING ABSTRACT).

Becchis GP, Pastore G, Cordero Di Montezemolo L, Brach Del Prever A
Clinica Pediatrica E. Piazza Polonia 94 - Torino, Torino, Italy
Tumori; 67(2,SupplA):101 1981

Our study was conducted on 40 children (17 males and 23 females) with acute lymphatic leukemia (ALL) treated between 1973 and 1979 with ALL protocols 7401 and 7601. Prevention of meningopathy was achieved with intraspinal methotrexate in all of the patients and cobalt teletherapy in 32 patients. 16 children have stopped therapy, 9 have recurrences, 1 patient died in complete remission; the remaining 14 are continuing therapy and are currently in complete remission. Increase in height and weight during treatment was measured every 6 mo using Tanner's growth curves. No difference in growth was found between the 8 patients who had cobalt teletherapy and the remaining 32. Likewise no change was observed in patients with recurrences when compared with those currently in complete remission. Nor was any difference found based on sex. Only 2 patients showed a tendency to increase their height measurements: in both cases convulsive crises occurred during the course of the disease. Our results demonstrate that children with ALL, treated with radio-chemotherapy and evaluated according to Tanner's growth curves, grow in a normal fashion. (no Refs) (In ITA)

31. HISTIOCYTOSIS X - AN IMMUNE DEFICIENCY DISEASE? STUDIES ON ANTIBODY-DEPENDENT MONOCYTE-MEDIATED CYTOTOXICITY.

Kragballe K, Zachariae H, Herlin T, Jensen J
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Br J Dermatol; 105(1):13-18 1981

Six children with histiocytosis X, all in clinical remission, were investigated for antibody-dependent cytotoxicity mediated by monocytes and neutrophils. Monocytes demonstrated a reduced cytoxicity and a normal Fc receptor activity. Judged by light microscopy the monocytes were normal. Preincubation with the patient's serum did not influence the cytotoxicity of normal monocytes. Neutrophils from patients with histiocytosis X showed a normal cytotoxic activity. We postulate a functional defect of the mononuclear phagocyte serum in histiocytosis X. (Author abstract) (19 Refs)

32. STUDIES OF CELLULAR PROLIFERATION IN INFANTILE LEUKEMIA BY IMPULSE CYTOPHOTOMETER (I.C.P.).

Iwama M
Dept. Pediatrics, Nagoya Univ. Sch. Medicine, Nagoya, Japan
Nippon Gan Chiryo Gakkai Shi; 16(1):56-63 1981

Nucleic DNA distribution of leukemic cells from peripheral blood and bone marrow was determined with the aid of impulse cytophotometry (ICP) after staining the cells with ethidium bromide. The leukemic cells were obtained from 2-18-yr-old children with acute lymphocytic leukemia (5 cases), acute myelocytic leukemia (4), or leukocytic reticulosarcoma (1). During the onset or relapse of the disease, the DNA histograms of many cases showed high peaks of 2N cells and low peaks of 4N cells. Changes in patterns of histograms were examined after administration of vincristine (V), cytosine arabinoside (CA), or neocarzinostatin (NC). When V was injected, the cells accumulated in the S, G2-M phases. When CA was injected, the cells accumulated in the early S region, G1-S boundary at first (hr 24), then moved to late S or G2-M phases (hr 72). When NC was injected, the cells accumulated in the 4N region. Histograms of the patients refractory to chemotherapy did not show any remarkable changes. The results suggested that combination chemotherapy might be chosen more effectively on the basis or in vivo perturbation of the cell cycle. (23 Refs) (I n JPN)

33. A THERAPEUTIC TRIAL OF 10 DRUGS VS 4 DRUGS IN NON-HODGKIN'S LYMPHOMA (NHL) (MEETING ABSTRACT).

Chilcote R, Jenkin D, Anderson J, Coccia P, Exelby P, Meadows A, Kushner J, Kersey J, Siegal S, Wilson J, Leikin S, Hammond D
Childrens Cancer Study Group (CCSG). Los Angeles, CA
Pediatr Res; 15(4,Part2):575 1981

NHL's of children are a heterogeneous group of malignancies which when disseminated respond poorly to therapy. In CCSG 551, a stratified prospective trial for children with

NHL, we randomized 314 patients to receive 4 drugs (cyclophosphamide, methotrexate, vincristine, procarbazine) or 10 drugs (modified LSA2 L2). All patients received radiation to bulk disease and prophylactic intrathecal methotrexate. Patients were grouped by extent of disease (regional vs disseminated), and histologic type (lymphoblastic vs non-lymphoblastic). Of the 60 patients with regional disease, 85% remained free of disease at 24 mo, regardless of histology or treatment arm. Of the 254 patients with disseminated disease, 76% of those with lymphoblastic histology remained disease free at 18 mo using 10 drugs while only 36% were still in 1st remission on the 4 drug protocol. In contrast, 61% of those patients with non-lymphoblastic morphology remained in 1st remission at 18 mo on 4 drugs, but only 29% were still in 1st remission using 10 drugs. As the overall toxicity of the 10 drug protocol exceeded that of the 4 drug protocol, we now treat all patients with regional disease with local irradiation and the 4 drug protocol. For patients with disseminated disease the 10 drug protocol is superior for lymphoblastic disease while the 4 drug is advantageous for other histologies. (no Refs)

34. RESULTS OF TREATMENT OF 178 PEDIATRIC NON-HODGKIN'S MALIGNANT LYMPHOMAS BETWEEN 1973 AND 1978.

Patte C, Rodary C, Sarrazin D, Bernard A, Lemerle J
Service de Pediatrie, Institut Gustave-Roussy, rue Camille-Desmoulins, 94800 Villejuif, France
Arch Fr Pediatr; 38(5):321-327 1981

The treatment of 178 patients (124 males, 54 females; 9 mo-16 yr old) with malignant Hodgkin's lymphomas is described. Of the 178 cancers, 13 were Stage I, 21 Stage II, 80 Stage III, and 50 Stage IV and 6 undetermined. The tumor sites included the abdomen (68 patients), the mediastinum (55), otorhinolargyngological regions (32), lymphatic system (13) and others (10). The patients underwent induction combination chemotherapy with vincristine (VCR), adriamycin (ADR), cyclophosphamide (CYC), and prednisone, prophylactic CNS irradiation, and maintenance chemotherapy with combinations of VCR and ADR, VCR and CYC, or cytarabine and asparaginase. A complete remission was obtained in 90% of the patients. The total actuarial survival of the 178 patients studied was 40% at 48 mo. Survival is discussed in terms of neoplasm site, stage, and histology. Improvements are needed for the patients with widespread disease. (31 Refs) (In FRE)

35. COMBINED RADIO-CHEMOTHERAPY OF NON-HODGKIN'S LYMPHOMA IN CHILDHOOD (MEETING ABSTRACT).

Lombardi F, Kenda R
Istituto Nazionale per lo Studio e la Cura dei Tumori, Milan, Italy
Tumori; 67(2,SupplA):137 1981

From 1976 to 1979 52 pediatric patients (up to age 16) with previously untreated non-Hodgkin's lymphoma were treated at the National Tumor Institute, Milan, with a single chemo-radiotherapy protocol. The induction phase called for administration of adriamycin (ADM), vincristine (VCR), cytoxan (CTX), methotrexate (MTX) in high doses, cytarabine (AraC), bleomycin (BLM), 6-thioguanosine (6-TG), and prednisone; irradiation of the most voluminous neoplastic mass in doses of 30-35 Gy; preventive treatment of the CNS (radiotherapy [RT] to the brain in a dose of 24 Gy and extended release MTX). The patients in complete remission continued chemotherapy alternating cycles of 6-mercaptopurine (6-MP) + MTX with AraC + 6-TG with brief reinduction periods. Treatment was planned to continue for 24 mo. There were 41 boys and 11 girls; av age was 7 yr. The site where the disease presented itself at diagnosis were: abdomen in 19 children, mediastinum in 15, peripheral lymph nodes in 6, extralymphatic regions in 4; in 8 patients the disease was disseminated. Complete remission was obtained in all the patients. 67.3% (35/52) are alive with no signs of recurrence and a median follow-up of 21 mo. In the 15 patients with recurrence the site of the first recurrence was: abdomen in 5 patients, CNS in 5, SC in 2, testicular in 1, mediastinal 1 and bone marrow in 1. These 15 patients are all deceased. (no Refs) (In ITA)

36. PATHOHISTOLOGIC STUDIES OF MALIGNANT LYMPHOMAS IN CHILDREN.

Omiya A, Watanabe S, Ise T
Div. Pathology, Natl. Cancer Center, Chuo-ku, Tokyo 104, Japan
J Jpn Soc Reticuloendothel Syst (Jpn ed); 20(4):241-247 1981

Of 29 malignant lymphomas (excluding Hodgkin's disease), one was histologically follicular and 28 were diffuse lymphomas. The primary site was the superficial lymph nodes in the head and neck region for 13, and the superficial lymph nodes of the inguinal region for three. No leukemic change (when tumor cells were found in smear preparations of both peripheral blood and bone marrow) was found in follicular lymphoma, but a change was found in 18 of the 28 diffuse lymphomas and in 15 of the 17 lymphoblast-type diffuse lymphomas. All of the six patients with lymphoblast-type lymphomas of the eight who had mediastinal tumors (3 primary cases), had a leukemic change; one with a large cell-type lymphoma had a leukemic change at the terminal stage, and one patients with lymphoma classified as polymorphic-cell type had no leukemic change. Invasion into the CNS was seen in 9 of 28 diffuse lymphomas, histologically, 7 of the 17 lymphoblast type, and one each of the four large cell-and the four polymorphic-cell type lymphomas. It was not seen in the three patients with Burkitt-type lymphoma. Three of the 29 patients are still alive: one with follicular lymphoma after 10 yr, one with lymphoblast type lymphoma after 8 yr and one with large-cell type lymphoma after 4 yr. The 50% survival rate is longest (19 mo) for the polymorphic-cell type, followed by large-cell type (9 mo), lymphoblast type (7 mo), and Burkitt type (5 mo). Clinically, there were 2, 7, 14 and 6 patients with cancer or Murphy's clinical Stage I, II, III, and IV, respectively. Both of the Stage I patients are still alive, and the 50% survival period for those with Stages II, III and IV lymphoma were 20 mo, 9.5 mo and 5 mo, respectively. (11 Refs) (In JPN)

37. TREATMENT OF HODGKIN'S DISEASE IN CHILDHOOD: RESULTS AND THERAPEUTIC PROSPECTS (MEETING ABSTRACT).

Kenda R, Lombardi F
Istituto Nazionale per lo Studio e la Cura dei Tumori, Milano, Italy
Tumori; 67(2,SupplA):138 1981

From 1971 to 1979 102 children (up to 16 yr old) with Hodgkin's disease were treated at the National Tumor Institute, Milan. There were 64 males, 38 females; age varied between 2.11 and 15.8 yr. At the conclusion of the clinico-pathologic diagnostic procedures the pathologic stages were as follows; 26 patients in stage I, 22 in stage II, 1 in stage III and 17 in stage IV. Laparosplenectomy was performed in 72 patients; laparoscopy in 14. Laparatomy modified the clinical stage in 30/72 children (42%), while laparoscopy never altered the clinical stage. Patients in stage I and IIA were treated with radiotherapy alone ('subtotal nodal irradiation'); doses of 40-45 Gy were administered to sites involved by disease and 35-40

Gy to sites irradiated preventively. Patients in stage IIB and III underwent combined radiochemotherapy: 3 cycles of nitrogen mustard, oncovin, procarbazine, prednisolone (MOPP)-radiotherapy (RT)-3 cycles of MOPP; in these cases the diseased sites were irradiated in a dose of 35 Gy and the preventive sites in a dose of 30 Gy. The patients in stage IV after 6 cycles of chemotherapy were treated with radiotherapy to just the most extensively diseased sites in a dose of 25 Gy. The percentage survival without recurrence at 5 yr, calculated by the actuarial method, turn out to be 75% for stages I and II, 77% for stage III, 70% for stage IV; the actuarial percentages of survival at 5 yr are 100%, 81%, and 90%, respectively. (no Refs) (In ITA)

38. NATURAL KILLER (NK) ACTIVITY IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

Tanaka Y
Dept. Pediatrics, Hiroshima Univ. Sch. Medicine, Hiroshima 734, Japan
Hiroshima J Med Sci; 30(2):127-133 1981

The NK activity of peripheral blood mononuclear cells from 20 children (aged 1-13 yr) with acute lymphoblastic leukemia at the time of diagnosis and during chemotherapy was inve stigated. Before chemotherapy, in five children the NK activity increased with the effector to target cell (E/T) ratio; in three children the NK activity was within the normal range, and in two it was significantly lower. Bone marrow cells aspirated from iliac crests in these five patients showed no NK activity against K 562 target cells. NK activity decreased after the start of induction therapy with vincristine and prednisolone. After complete remission, NK activity returned to normal levels (higher than at the time of diagnosis in four patients). During maintenance chemotherapy, NK activity in 15 children with ALL in continuous complete remission was 44.9 +-16.9% compared with 40.8 +-11.5% in 20 healthy children and 41.3 +-14.2% in 26 healthy adults. (36 Refs)

39. SPREAD OF CLOSTRIDIUM DIFFICILE AMONG PATIENTS RECEIVING NON-ABSORBABLE ANTIBIOTICS FOR GUT DECONTAMINATION.

Rogers TR, Petrou M, Lucas C, Chung JT, Barrett AJ, Borriello SP, Honour P
Westminster Medical Sch., London SW1P 2AR, England
Br Med J; 283(6288):408-409 1981

Clostridium difficile was repeatedly recovered from stool specimens of 10 children (5 boys, 5 girls, 1-16 yr old) undergoing gut decontamination with nonabsorbable antibiotics in preparation for bone marrow transplantation or during chemotherapy for acute leukemia. These findings indicate that C difficile can be transmitted to hospital patients by cross-infection. Continued protective isolation of susceptible patients until their discharge is recommended. (5 Refs)

40. XANTHINE OXIDASE (XO) DEFICIENCY IN A PATIENT WITH ACUTE LYMPHOCYTIC LEUKEMIA (ALL) (MEETING ABSTRACT).

Morgan ER, Honig GR, Nelson DJ
Division of Hematology, Children's Memorial Hospital, Chicago, IL
Pediatr Res; 15(4,Part2):582 1981

XO catalyzes the oxidation of xanthine and hypoxanthine to uric acid (UA), as well as the conversion of 6-mercaptopurine (6-MP) to the inactive products 6-thioxanthine and 6-thiouric acid. A child with XO deficiency and ALL provided an opportunity to examine the role of XO as a mediator of 6-MP toxicity and metabolism. A 16 yr old girl presented with a WBC count of 310,000/ul with greater than 90 percent lymphoblasts in her blood and bone marrow. Her WBC fell to 9,500/ul after 3 days of chemotherapy, and she achieved complete remission after 4 wk. Her initial UA level was 0.7 mg/dl, and the level did not increase during treatment. Her maintenance chemotherapy included daily 6-MP, and subsequently high-dose intermittent 6-MP, which she tolerated without apparent toxicity. On an unrestricted diet she excreted 28.5 mg of UA/24 hr and 2,955 u mol of oxypurines. Assays of XO activity indicated less than 1 percent of normal enzyme activity, confirming the diagnosis of XO deficiency. High performance liquid chromatography assays of the patient's urine showed that 47 of administered 6-MP was excreted unchanged with 6-thiouric acid representing less than 1 percent. The absence of unusual toxicity from 6-MP in this child indicated that in leukemia patients with XO deficiency, either cogential or due to allopurinol, major reductions in 6-MP dosage, which could compromise antileukemic therapy, may not be necessary or appropriate. (no Refs)

41. ABNORMAL CT BRAIN SCANS IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT).

Mahoney DH, Glaze DG, Gerson LP, Starling KA, Easley JD
Departments of Pediatrics, Radiology, Radiotherapy, Baylor College of Medicine, Houston, TX
Pediatr Res; 15(4,Part2):581 1981

The results of computed tomographic (CT) brain scans in 2 groups of children will ALL are reviewed. In Group I, 25 asymptomatic children 3-5 yr from initial diagnosis were studied upon discontinuation of therapy. Mild ventricular dilation (5/25) and cerebral calcifications (1/25) were noted. Of the 6 patients with abnormal CT scans, radiotherapy + intrathecal methotrexate were used in 4/6 patients and intrathecal therapy alone in 2/6 patients. Subsequent neurological complications were uncommon (1/25). In Group II, 14 children who developed neurologic syndromes were studied while still receiving therapy. Leukoencephalopathic syndromes were diagnosed in 10/14 children. CT scan abnormalities occurred in 9/10 patients, and both ventricular and subarachnoid space dilation in 8 patients; in addition, 2 patients had areas of intracerebral calcification in areas of decreased attenuation coefficient. CNS infections were subsequently identified in 2/10 patients (toxoplasmosis and St. Louis encephalitis). Significant CT scan abnormalities are more likely to be seen in patients with antecedent clinical problems or in patients receiving more intensive CNS therapy. (no Refs)

42. THERAPY OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) USING ADRIAMYCIN (ADR) WITH OR WITHOUT HIGH DOSE ASPARAGINASE (ASP) (MEETING ABSTRACT).

Sallan SE
Sidney Farber Cancer Institute, Boston, MA
Pediatr Res; 15(4,Part2):587 1981

We initiated a protocol for non-T-cell childhood ALL that used q 3 weekly ADR. A random half of patients (pts) also received high dose ASP q 1 wk for 6 mo. All patients received cranial radiation and intrathecal methotrexate (MTX). After completing ADR, q 3 weekly pulses of MTX and 6-mercaptopurine were begun. Therapy was electively discontinued after the completion of 30 mo. Seventy-four pts entered remission between 1977 and 1979. After randomization there were two

36-pt groups: A) ADR without ASP; B) ADR with ASP. The groups were comparable in age and white blood count. However, Grp A had 11.13 patients whose lymphoblasts lacked the common ALL antigen. In Grp A 16/36 pts had failed compared to Grp B 9/36. The me dian time to failure for Grp A was 28 mo and disease-free survival in Grp B is 62%. The difference between the groups is not statistically significant, but the trend is apparent. Of the failures in Grp A, 15/16 relapsed; 11 in the bone marrow (BM) only, 1 in the CNS and 3 in the BM/CNS. Of the 9 Grp B failures, 6 were relapses (3 BM, testicle, 2 CNS). Four children died in remission: 3 of adriamycin cardiomyopathy and 1 of sepsis. Efforts to decrease toxicity involve prediction of cardiac toxicity by the measurement of the myocardial contractile state (methoxamine stress testing) and pharmacologic studies of ADR/ASP intractions. Further trials of therapy using high dose ASP for prolonged periods of treatment in childhood ALL appear warranted. (no Refs)

43. ACUTE LEUKEMIAS: PART I. ACUTE LYMPHOBLASTIC LEUKEMIA.

Foucar K
Dept. Pathology, Univ. Iowa Hosp. and Clinics, Iowa City, IA
Lab Med; 12(7):404-410 1981

About 70-80% of cases of childhood acute lymphoblastic leukemia (ALL) are the non-T, non-B cell type; about 65% of these patients have ALL antigen (common ALL) and the others have null cell ALL. Common ALL occurs in early childhood (median, 6 yr old) and is usually localized to the blood and bone marrow. With modern chemotherapy, 93% of all children with ALL enter complete remission (CR) and remain in CR for a median of 65 mo. About 40-50% survive at least 5 yr. These figures reflect the predominance of common ALL, with its comparatively favorable prognosis. About 25% of patients have T-cell ALL, which often affects adolescents and young adults (median, 16 yr old). Most patients present with lymphadenopathy and hepatosplenomegaly. This form of ALL overlaps clinically and morphologically with lymphomas of the lymphoblastic and convoluted lymphocytic types; these diseases may represent a spectrum of the same disease, differing only in their initial presenting signs. Most patients relapse within 1 yr; long-term survival and CR are infrequent. Extramedullary involvement often develops at relapse; CNS involvement is commoner in T-cell ALL than in common ALL. The rare B-cell ALL (less than 5%) resembles the leukemic phase of Burkitt's lymphoma (BL). African children with BL rarely present with a leukemic blood picture. The prognosis of nonendemic BL (B-cell ALL) is very poor, with a reported median survival time of only 10 mo. (24 Refs)

44. COMBINATION CHEMOTHERAPY FOR MARROW RELAPSE IN CHILDREN AND ADOLESCENTS WITH ACUTE LYMPHOCYTIC LEUKAEMIA.

Amadori S, Spiriti MA, Meloni G, Pacilli L, Papa G, Mandelli F
Inst. Haematology, Univ. Rome, Via Chieti, 7, 00161 Rome, Italy
Scand J Haematol; 26(4):292-296 1981

Thirty-eight children with acute lymphocytic leukemia (ALL) in hematologic relapse were retreated with vincristine, daunomycin and prednisone (VPD) together with intrathecal methotrex ate and prednisone, followed by asparaginase in those patients not in complete remission after 4 wk. The overall complete remission (CR) rate was 79%; asparaginase was needed to achieve CR in 7 of the 30 responding patients. The median duration of second remission was only 36 wk, but 6 out of 15 children receiving the COAP-POMP-CART consolidation regimen remain in continuous second remission after 37-260 wk; 3 of them are currently off all therapy. It is concluded that a prolonged second remission can be achieved in children with ALL in bone marrow relapse by combining intensive chemotherapy with the prevention of meningeal leukemia. (Author abstract) (14 Refs)

45. CALCIFYING MEDIASTINAL CYSTS FOLLOWING COMBINED RADIATION AND CHEMOTHERAPY FOR MALIGNANT LYMPHOMA (MEETING ABSTRACT).

Stover B, Bull F
No affiliation given
18th Congress of European Society of Pediatric Radiology, Oslo, Norwey, May 20-23, 1981 The Society; :A2(R) 1981

Calcifying mediastinal cysts were seen in a 12.5 yr old boy with Hodgkin's disease stage II A-nodular sclerotic type-of the neck and mediastinum and 13.5 yr old boy with lymphosarcoma. They remained without relapse after adequate radiation and intensive chemotherapy for 3 and 5 yr respectively. The follow-up chest x-rays showed during clinical remission a complete regression of the extensive mediastinal tumor except for mass in the right middle anterior mediastinum in both cases. No clinical or radiographic evidence of pericardial effusion was observed. The cavogram, carried out in one case, revealed a homogeneous right mediastinal mass bulging into the vena cava and the right atrium. The follow-up examinations showed slight regression and calcification of the mass on the chest x-ray in one case; in the other no evident regression but cyst formation with marginal calcification in the computed tomography (CT). Possible developmental mechanisms of the cyst formations are discussed. The recognition of this unusual clinical course by CT is important in order to avoid inadequate therapeutic consequences. (no Refs)

46. VINCRISTINE AND PREDNISOLONE INDUCTION AND REINFORCEMENT THERAPY FOR ACUTE LYMPHOBLASTIC LEUKAEMIA IN CHILDREN.

Shetty PA, Antia PK, Jussawalla DJ
Dept. Chemotherapy, Tata Memorial Hosp., Parel, Bombay 400 012, India
Indian J Cancer; 18(2):150-152 1981

Twenty-five consecutive children (22 males, 3 females; aged 3-14 yr) with confirmed acute lymphoblastic leukemia were treated with induction therapy of vincristine (VCR: 1.4 mg/square meter iv/wk) until complete remission (CR) and prednisolone (PRN: 40 mg/square meter/day, po in divided doses administered concurrently). After induction of CR, cranial radiotherapy of 2,400 rads in 2.5 wk was administered together with intrathecal methotrexate (MTX: 10 mg/square meter 2x/wk x 5). Eighteen of the ch ildren were then randomized to receive 6-mercaptopurine (6-MP: 50 mg/square meter, po/day), MTX (10 mg/square meter/wk, po) as maintenance together with VCR and PRN as induction therapy; the other arm received maintenance therapy with 6-MP and MTX. Nineteen of the children achieved CR (remission rate 76%). Eighteen of the children were randomized soon after achieving CR: 9 in each arm of the study. Of the nine receiving reinforcement therapy along with maintenance, four relapsed and five continued in remission at 1 yr. Of the nine receiving maintenance therapy alone, seven relapsed and two continued in remission at 1 yr. (12 Refs)

47. TWO CASES OF SUSPECTED FAMILIAL ERYTHROPHAGOCYTIC LYMPHOHISTIOCYTOSIS.

Lubin JR, Walton DS, Albert DM
(c/o Albert) Howe Lab. Ophthalmology, Massachusetts Eye and Ear Infirmary, 243 Charles St., Boston, MA, 02114
Am J Ophthalmol; 91(6):743-749 1981

We studied two children who died of suspected familial erythrophagic lymphohistiocytosis. The first child, a 7-yr-old boy, had fever, diffuse pulmonary infiltrates, bilateral choroidal effusions, diabetes insipidus, and marked meningitis with increased cerebrospinal fluid protein. Ocular histologic studies disclosed diffuse choroidal infiltrates consisting of atypical mononuclear cells with foamy cytoplasm. Similar histologic changes were seen in the lungs, liver, brain, and kidneys. The second child, the 5-yr-old male cousin of Patient 1, had fever, hepatosplenomegaly, pulmonary infiltrates, and cerebrospinal fluid pleocytosis. Histologic changes were similar to those in the first case, but viral particles of the herpes simplex virus group were noted in brain tissue as well. The findings of virus particles in this histiocytic proliferative disease suggested a defect in the inflammatory response in these patients. (Author abstract) (18 Refs)

48. NON-HODGKIN'S LYMPHOMA IN CHILDHOOD.

Patte C, Gerard-Marchant R, Caillou B, Rodary C, Weisgerber CB, Hartmann O
Service de Pediatrie, Institut Gustave-Roussy, 94800 Villejuif, France
Arch Fr Pediatr; 38(5):359-367 1981

The nosology, clinical forms, staging and grading, and treatment of childhood non-Hodgkin's lymphomas (NHLs) are discussed. The histological classification of NHLs is considered. The diagnosis of abdominal, mediastinal, otorhinolaryngological, lymphatic, extra-lymphatic, and generalized forms of NHL is discussed. In the staging of NHL, clinical examination, thoracic radiography, iv urography, medullograms, cerebrospinal fluid analysis, and hematological studies should be performed. For Stage I and II patients, lymphography is recommended. Radiographic examination of associated tumor involvement should be performed in Stage IV patients. The use of polychemotherapy, surgery, radiotherapy, and CNS prophylaxis in the treatment of NHLs is described. Drugs most commonly used in the treatment of NHL include vincristine, cyclophosphamide, adriamycin, and prednisone. Practical problems encountered during the treatment of NHL, such as bone marrow aplasia, gastrointestinal toxicity, and water-electrolyte imbalances, are described. (43 Refs) (In FRE)

OTHER SOLID TUMORS OF CHILDHOOD

49. DIAGNOSIS AND THERAPY OF HEPATOBLASTOMA. SUCCESSFUL TREATMENT OF AN INOPERABLE HEPATOBLASTOMA AND REVIEW OF THE LITERATURE.

Gefeller D, Haase E, Loblich HJ
(c/o Haase), Hannoversche Kinderheilanstalt, Ellernstrasse 40, D-3000 Hannover 1, W. Germany
Z Kinderchir; 33(1):39-54 1981

In a 2-mo-old infant hepatomegaly was observed. During laparotomy inoperability was determined. Histologic analysis of bioptic material revealed an embryonal hepatoblastoma of the small cell-type. The tumor was in Stage III. The infant received endoxan iv for 2 days after surgery (100 and 50 mg, respectively). During the following 6 wk the infant was treated with Co60 irradiation; the two series comprised a total dose of 900 rads. The tumor had then decreased to 3/5 of its original size. Since maintenance therapy with vincristine was not tolerated by the patient, endoxan was again administered orally (5 mg/kg/day). Second laparotomy was performed 1.5 yr after the first intervention. Histologic analysis of the liver resulted in tumor-free liver tissue and lymph nodes. In the literature, complete cure of inoperable hepatoblastoma was rarely reported. Since curative irradiation doses exceed the radiation tolerance of liver parenchyma, radiotherapy must be combined with chemotherapy. In case of partial liver resection, adjuvant chemo- and radiotherapy should not be initiated during the first 4-8 post-operative wk in order to avoid possible regeneration processes of liver parenchyma. (55 Refs) (In GER)

50. TREATMENT STRATEGIES FOR INFANTS WITH MALIGNANT SACROCOCCYGEAL TERATOMA.

Raney RB, Chatten J, Littman P, Jarrett P, Schnaufer L, Bishop H, D'Angio GJ
Div. Oncology, Children's Hosp. Philadelphia, 34th St. and Civic Center Blvd., Philadelphia, PA, 19104
J Pediatr Surg; 16(4,Suppl1):573-577 1981

Twelve children with malignant sacrococcygeal teratoma containing embryonal carcinoma, were treated at the Children's Hospital of Philadelphia between 1971 and 1980. Their ages at diagnosis ranged from 2 days to 23 mo; 8 of the 12 (67%) were girls. Five of the 12 patients presented with localized tumors which were grossly completely excised. Four received no further therapy, and all four recurred with histologically documented embryonal carcinoma. Despite subsequent treatment with radiation therapy (RT) and chemotherapy (vincristine, actinomycin D, and cyclophosphamide, collectively called VAC) in all four plus adriamycin in three, only one has survived free of disease, 8 yr from diagnosis. The other three died of tumor (2) or pneumonia after pulmonary RT (1). The fifth patient in this group received VAC with adriamycin (total dose, 350 mg/sq m) and died of autopsy-proven cardiotoxicity without tumor. The remaining seven patients presented with either unresectable local tumor (3) or distant metastases (4). One of these seven died 6 days after biopsy with massive liver metastases. The other six children were treated after operation with VAC (5) or vincristine and actinomycin D (1) chemotherapy, and five also received RT to the pelvis. One has survived free of disease at 6 yr after treatment with VAC and adriamycin and pelvic RT (3), but the other five died of tumor (2) or of pneumonia after pulmonary RT (3). Surgery alone is inadequate for successful management of children with malignant sacrococcygeal teratoma. Chemotherapy with VAC, with or without adriamycin, can be effective when combined with radiation, but fatal pulmonary toxicity can result from such combined therapy. The optimal therapeutic program for children with malignant sacrococcygeal teratoma is still evolving. (Author abstract) (18 Refs)

OTHER RELATED CLINICAL STUDIES

51. CISPLATIN DISPOSITION IN CHILDREN AND ADOLESCENTS WITH CANCER.

Crom WR, Evans WE, Pratt CB, Senzer N, Denison M, Green AA, Hayes FA, Yee GC
(c/o Evans) Clinical Pharmacokinetics Lab., St. Jude Children's Res. Hosp., 332 N. Lauderdale, Memphis, TN, 38101
Cancer Chemother Pharmacol; 6(1):95-99 1981

The pharmacokinetics of cisplatin (CP) were evaluated in 28 patients (19 males, 9 females; 1.7-20.5 yr old), 17 receiving 90 mg/square meter (m2), and 11 receiving 30 mg/m2. One patient was studied following six repeat doses, so that the disposition of CP was evaluated following a total of 34 doses. Diagnoses included neuroblastoma (9), rhabdomyosarcoma (5), osteosarcoma (4), germ cell tumor (5), and other tumors (5). Mean platinum serum concentrations were proportionally lower following the 30 mg/m2 infusions than following the 90 mg/m2 dosage group. Similarly, the biphasic disposition curves were similar at the two dosage levels, and the mean rate constants for the two patients receiving 30 mg/m2 were comparable to those determined in the 90 mg/m2 dosage group. Serial serum concentrations of parent platinum were consistently lower than total platinum concentrations, and declined more rapidly. Renal clearance for both groups was approx 35 ml/min/m2 at the end of the infusion, then declined to a relatively constant value of approx 1-3 ml/min/m2 beginning 6-12 hr after infusion. Several parameters of the two-compartment model were correlated with age to detect age-related differences in these parameters. The results indicated that the change in renal clearance of total platinum was apparently a function of two independent first-order processes for renal clearance of parent drug and CP metabolites. (20 Refs)

52. FUNCTIONAL CONSEQUENCES OF PRIMARY IRRADIATION AND CHEMOTHERAPY FOR CHILDHOOD ROUND CELL TUMORS OF EXTREMITIES (MEETING ABSTRACT).

Greenberg H, Cassady JR, Belli JA, Sallan SA
Departments of Radiation Therapy and Pediatrics, Harvard Medical School, Cambridge, MA
Long Term Normal Tissue Effects of Cancer Treatment, April 13-15, 1981, Bethesda, Maryland Committe for Radiation Oncology Studies; 1981

Primary irradiation (XRT) and chemotherapeutic (CT) treatment of metastatic round cell tumors originating in extremity bones or soft tissue has accomplished local control and preservation of function in the majority of limbs treated. However, a variety of musculoskeletal and soft tissue abnormalities have been described as a consequence of such treatment. This communication will review 25 such patients under 20 seen and treated who have been followed for a minimum of 2 yr following XRT. The majority (80%) were treated for Ewing's sarcoma or non-Hodgin's lymphoma of bone. 19 (72%) had primary lesions of the lower extremity. All but two who received only XRT received high-dose XRT (mean dose 5570 rad) and CT following histologic confirmation. Adjuvant CT was delivered for a minimum of 2 yr and comprised VAC (Vincristine, adriamycin, cyclophosphamide (9), Adramycin-VAC (4), or APO (7) in most. Megavoltage XRT plan comprised whole bone irradiation (mean dose 4100 rad) followed by small fields to the known tumor vol. Daily fraction sizes of 180-200 rad were used with preservation of a 1-2 cm strip of unirradiated skin and sc tissue. Immobilization devices and compensation were regularly utilized. Radiation dose to the entire bone, epiphyseal dose, and age at the time of XRT was correlated with functional results. Soft tissue, joint, and bony sequelae including shortening were examined and correlated with clinical and treatment factors including CT regimen. More than 80% of patients 9 yr or older with lower extremity lesions had limb shortening of less than 1 inch. Age at time of treatment, extent of lesion, nature of biopsy, intercurrent CT, and total dose of XRT all correlated with functional result. Based on local control and functional results achieved, such function-conserving treatment is endorsed and treatment factors felt to be necessary for optimal results will be discussed. (no Refs)

53. RADIOTHERAPY CHANGES OF THE PEDIATRIC HIP.

Libshitz HI, Edeiken BS
Dept. Diagnostic Radiology, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., 6723 Bertner Ave., Houston, TX, 77030
AJR; 137(3):585-588 1981

Significant radiation-induced abnormalities (aseptic necrosis of the femoral heads, slipped capital femoral epiphysis, radiation-induced sarcoma) were identified in 8 of 44 patients aged 16 yr or younger at the time of radiotherapy and followed for at least 3 yr. The incidence is 18% in the enti re group and 25% (8/32) if only patients with radiographs of the hips 3 or more yr after therapy are considered. The first evidence of abnormality developed 13 yr after irradiation in one patient. The need for long-term follow-up of therapeutically irradiated children is stressed. (Author abstract) (9 Refs)

54. EFFECTS OF CANCER TREATMENT ON HYPOTHALAMIC AND PITUITARY FUNCTION IN CHILDREN (MEETING ABSTRACT).

Kaplan SL
Department of Pediatrics, University of California San Francisco, San Francisco, CA, 94143
Long Term Normal Tissue Effects of Cancer Treatment, April 13-15, 1981, Bethesda, Maryland Committe for Radiation Oncology Studies; 1981

Delayed effects of cranial irradiation in endocrine function have been observed, particularly in those treated with non-hypothalamic-tumors. Growth hormone (GH) deficiency associated with impaired growth occurs commonly. Of the 17 children evaluated post-cranial irradiation for non-endocrine tumors, 11 had evidence of GH deficiency, 1 had thyroid-stimulating hormone (TSH) deficiency, 1 had ACTH deficiency, and 2 had gonadotropin deficiency. Two had no hypothalamic-pituitary deficiencies after more than 4 yr post-irradiation. Primary hypothyroidism and primary hypogonadism was demonstrated in 6 patients who had spinal and cranial irradiation. In contrast, cranial irradiation for tumors of the pituitary-hypothalamic region were associated with multiple deficits of hypothalamic-pituitary function. In 8 patients with a CNS germinoma, GH was deficient in all but deficits of ACTH (3/7), TSH (5/8), and gonadotropin (1) were more variable pre-therapy. Post-irradiation, additional deficits of ACTH was demonstrable in 1 and gonadotropin deficiency in 5 patients. At present, the incidence of hormonal deficiencies post-irradiation of the cranium and spine is not known. In children, serial growth measurements and prospective endocrine evaluation may provide this information. (no Refs)

55. ACYCLOVIR IN THE MANAGEMENT OF HERPES VIRUS INFECTIONS IN IMMUNOSUPPRESSED CHILDREN.

O'Meara A, Hillary IB
Children's Res. Centre, Our Lady's Hosp. for Sick Children, Dublin 12, Ireland
Ir J Med Sci; 150(3):73-77 1981

The use of acyclovir, a guanine derivative with an acylic side chain, in the treatment of persistent or severe herpes infections in six male patients (5-15 yr old) with malignant disease who were on chemotherapy at the time of infection was described. It seemed that acyclovir halted the progress of herpes simplex infection and in all instances healing appeared to be accelerated. Drug dosage varied in the six patients: patient 1 received 2.5 mg/kg/8 hr; patients 2 and 3 received 5 mg/kg/24 hr and yet clinical response was evident; and patients 4, 5, and 6 received 5 mg/kg/ 8 hr. The importance of maintaining proper hydration to prevent renal damage due to crystal formation is discussed. In patients 4, 5, and 6, who were gven the highest dosage of acyclovir, iv fluids were given for the 5 days of therapy and the fluid balance was strictly monitored. No toxicity was observed in any of the patients that could be attributed to the acyclovir. (9 Refs)

56. VARICELLA AND HERPES ZOSTER IN 83 CHILDREN TREATED FOR MALIGNANCIES.

Gruson S, Mouchnino G, Reinert P, Patte C
Service de Pediatrie, Hopital Intercommunal, 94000 Creteil, France
Arch Fr Pediatr; 38(5):337-343 1981

The clinical and biological aspects of herpes zoster (26 cases) and varicella (57 cases) in 83 children being treated for various solid tumors (37) or leukemias and lymphomas (46) are described. Clinical symptoms of varicella in these patients included more numerous and more prolonged skin lesions, consciousness difficulties (10/57), and abdominal disorders (9/57). Abdominal disorders were found in patients with a more severe form of varicella: the two patients with melena died, as did 3/4 of the patients with intense, unexplained abdominal pain. Intense pain was present in 6/26 patients with herpes zoster, but no menacing visceral symptoms were observed. Lymphopenia of less than 1,000/cubic mm was observed in 37/57 of the varicella patients, and in 15/26 of the herpes zoster patients. Hemostatic, bacteriologic, and immunologic studies of these patients are described. The treatment of the patients with complicated (24) and uncomplicated (33) varicella is described. In 6/24 of the patients with complicated varicella, death occurred. The treatment of the patients with herpes zoster is described. (24 Refs) (In FRE)

57. LACTIC ACIDOSIS IN PEDIATRIC PATIENTS WITH CANCER RECEIVING TOTAL PARENTERAL NUTRITION.

Merritt RJ, Ennis CE, Thomas DW, Sinatra FR
Nutrition Support Team and Gastroenterology Program, Childrens Hosp. Los Angeles, 4650 Sunset Blvd., Los Angeles, CA, 90027
J Pediatr; 99(2):247-250 1981

The charts of five oncology patients (three males and two females, aged 2-13 yr) receiving total parenteral nutrition (TPN) who developed lactic acidosis were reviewed. Diagnoses were lymphoma, sarcoma, or neuroblastoma. The TPN soln contained 25% glucose and 4% Freamine with electrolytes, vitamins, minerals, and trace elements. All patients were receiving or had received chemotherapy for their underlying disease. At the time of development of acidosis, infused glucose dose was 6.0-16.0 mg/kg/min. Lowest observed serum bicarbonate in mEq/liter ranged between 3 and 12; highest serum lactate varied between 4.2 and 22.0 mEq/liter. Anion gap was 22-33 mEq. Lethargy and/or Kussmaul breathing accompanied acidosis. Therapy consisted of decreasing the glucose infusion rate and adding base (acetate or bicarbonate). Two of the acidoses were resolved; the remaining three patients died. Two cases are reporte d in detail. It is suggested that glucose based TPN may lead to lactic acidosis in some patients with cancer. During an 18 mo span in the same hospital, 5 of 25 pediatric cancer patients receiving TPN developed lactic acidosis. In patients with disseminated tumors, routine monitoring of blood lactate may be indicated when TPN is used for supportive or adjunctive therapy. (10 Refs)

AUTHOR INDEX WITH CITATION NUMBERS

Albert DM 47
Amadori S 44
Amici G 3
Anderson J 33
Angerpointner T 2
Antia PK 46
Armstrong E 6
Balderas A 26
Ball F 45
Barrett AJ 39
Becchis GP 30
Bedros A 18
Belli JA 52
Bernard A 34
Bishop H 50
Bloch-Michel E 15
Borriello SP 39
Brach Del Preve 30
Buchanan GR 21
Caillou B 48
Carapella CM 14
Carcassonne M 5
Caroli F 14
Cassady JR 52
Castleberry RP 23
Cejka J 18
Chatten J 50
Cheek W 9
Chen T 9
Chilcote R 33
Chuang S 6
Chung JT 39
Clyne LP 17
Coccia P 33
Cohen IJ 7
Cordero Di Mont 27
Cordero Di Mont 30
Cornet JM 21
Crist WM 23
Crom WR 51
D'Angio GJ 50
Da Pian R 10
Dahl GV 16
Dearth JC 23
Denison M 51
Di Lorenzo N 13
Donati E 10
Dunn NL 28
Easley JD 41
Edeiken BS 53
Edson JR 20
Edwards MS 12
Ekert H 26
Ennis CE 57
Ernest C 15
Evans AE 7
Evans WE 51
Exelby P 33
Fekete C 4
Fergusson J 22
Filipovich AH 29
Fitz CR 6
Flint A 23
Forte G 3
Fortuna A 13
Foucar K 43
Froehlich TW 21
Fulton DS 12
Gefeller D 49
Gerard-Marchant 4
Gerard-Marchant 48
Gerosa MA 8
Gerson LP 41
Giuffre R 13
Glaze DG 41
Gonzalez-Crussi 1
Gordon J 22
Grazia E 27
Green AA 51
Greenberg H 52
Gruson S 56
Haas RJ 2
Haase E 49
Hammond D 33
Hann HL 7
Hartmann O 48
Harwood-Nash DC 6
Hayes FA 51
Hecker WCh 2
Herlin T 31
Hillary IB 55
Honig GR 40
Honour P 39
Hsueh W 1
Ise T 36
Iwama M 32
Jarrett P 50
Jenkin D 33
Jensen J 31
Jussawalla DJ 46
Kalifa C 15
Kaplan SL 54
Kelly DR 23
Kenda R 35
Kenda R 37
Kersey J 33
Komp DM 17
Kragballe K 31
Krivit W 20
Kushner J 33
Lebreuil G 5
Leikin S 33
Leitmeyer JE 7
Lemerle J 15
Lemerle J 34
Lemerle J 4
Levin VA 12
Libshitz HI 53
Littman P 22
Littman P 50
Loblich HJ 49
Lombardi F 35
Lombardi F 37
Look AT 16
Lubin JR 47
Lucas C 39
Mahoney DH 41
Mancini AF 19
Mandelli F 44
Mastrostefano R 14
Matthews RN 26
Mazza C 10
Meadows A 33
Meadows AT 22
Meloni G 44
Merritt RJ 57
Metz O 24
Miniero R 27
Moore T 9
Morgan ER 40
Morgando MP 27
Moss K 22
Mouchnino G 56
Nelson DJ 40
O'Meara A 55
Occhipinti E 14
Omiya A 36
Pacilli L 44
Pannuti O 3
Papa G 44
Pasqualin A 10
Pastore G 27
Pastore G 30
Patte C 34
Patte C 48
Patte C 56
Pession A 19
Petrou M 39
Pettersson H 6
Pompili A 14
Pratt CB 51
Priest JR 20
Ragab AH 23
Raimondi AJ 11
Raney RB 50
Ravindranath Y 18
Ravindranath Y 25
Raybaud C 5
Reinert P 56
Riccio A 14
Rivera G 16
Rodary C 15
Rodary C 34
Rodary C 4
Rodary C 48
Rogers TR 39
Roper MA 23
Rosito P 19
Russell EC 28
Sallan SA 52
Sallan SE 42
Saracco P 27
Sarrazin D 15
Sarrazin D 34
Sarrazin D 4
Sartain PA 21
Schnaufer L 50
Senzer N 51

Serra L. 19
Sexauer C. 9
Shetty PA. 46
Siegal S. 33
Sinatra FR. 57
Smith RG. 21
Spector BD. 29
Spiriti MA. 44
Starling K. 9
Starling KA. 41
Stoll W. 24
Stover B. 45
Sullivan E. 17
Tanaka Y. 38
Thomas DW. 57
Tomita T. 11
Tournade MF. 4
Van Eys J. 9
VecchiV. 19
Vivarelli F. 19
Voute PA. 4
Walton DS. 47
Wara WM. 12
Warrier IA. 18
Warrier R. 25
Watanabe S. 36
Waters KD. 26
Weisgerber CB. 48
Weitz H. 2
Wilson CB. 12
Wilson J. 33
Yee GC. 51
Zachariae H. 31

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In this issue:

- **RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1**
- **WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 2-6**
- **NEUROBLASTOMAS AND CNS TUMORS..... 7-12**
- **LYMPHOMAS AND LEUKEMIAS..... 13-33**
- **OTHER SOLID TUMORS OF CHILDHOOD..... 34-35**
- **OTHER RELATED CLINICAL STUDIES..... 36-38**
- **SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 39-40**

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. INVASIVE FIBROMAS OF THE LIMBS IN CHILDHOOD.

Padovani JP, Rigault P, Pouliquen JC, Guyonvarch G, Beneux J, Nezelof C
(c/o Rigault), Hopital des Enfants Malades, 149, rue de Sevres, F 75730 Paris Cedex 15, France
Rev Chir Orthop; 67(3):199-208 1981

The diagnosis and treatment of 10 patients (5 girls and 5 boys) with soft tissue fibromas of the upper (2) or lower (8) extremities are described. Symptoms were observed in patients ages 5 mo-12 yr but diagnoses were made when patients were

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ages 2-17 yr old. The fibromas were invasive and multiple lesions were observed in two patients. The clinical symptoms and radiologic, arteriographic, xerographic, and radionuclide imaging findings of these patients are described. Macroscopically, the tumors were whiti sh, firm, dense, poorly limited, and invasive. Histologically, fibroblastic proliferation was observed with groups of regular fusiform cells and collagen fibers. All 10 patients underwent surgical resection. Two patients also received radiotherapy. Recurrences were observed in 8/10 patients; in the remaining two patients, no recurrences had been noted at follow-up times of only 5 mo and 2 yr. The treatment of invasive soft tissue fibromas is discussed. (52 Refs) (In FRE)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

2. EFFECT OF HEPATIC IRRADIATION ON THE TOXICITY AND PHARMACOKINETICS OF ADRIAMYCIN IN CHILDREN.

Holcenberg JS, Kun LE, Ring BJ, Evans WE
Dept. Pharmacology, Medical Coll. Wisconsin, P.O. Box 26509, Milwaukee, WI, 53226
Int J Radiat Oncol Biol Phys; 7(7):953-956 1981

The possibility of alterations in the pharmacokinetics and toxicity of adriamycin (AD) following radiotherapy was studied in 10 children (2-12 yr old) with unilateral Wilms' tumors. The treatment was surgical removal of kidney followed by AD (30 mg/square meter (m2) at 1, 4, and 8 wk and then every 4 wk to a total of 240-300 mg/m2) and vincristine (1.5 mg/m2 weekly for 6 doses and then every 2 wk for 23 doses). Radiation therapy was begun within 1 wk following the first dose of AD. The dose of irradiation to significant hepatic vol ranged from 2,400-2,700 rad at 100-150 rad/fraction. Liver function tests showed slight abnormalities during the treatment. The greatest elevation in serum transaminase and alkaline phosphatase usually occurred after the third or fourth dose of AD, 1-2 mo after the completion of radiation therapy. Transient leukopenia and mild nausea and vomiting occurred after most doses of AD. Two patients had a lower nadir of WBC count following the AD course during radiation therapy. In the other patients, these toxic manifestations were similar before, during, and after radiation therapy. No statistical difference was noted in the plasma anthracycline values before, during, or after hepatic irradiation. The results indicated that children receiving limited hepatic irradiation and 30 mg/m2 of AD did not have enhanced hepatic toxicity and showed no significant alteration in AD pharmacokinetics. (27 Refs)

3. THE DRASH SYNDROME: MALE PSEUDOHERMAPHRODITISM, NEPHRITIS, AND WILMS' TUMOR.

Goldman SM, Garfinkel DJ, Oh KS, Dorst JP
Dept. Radiology, Johns Hopkins Hosp., Baltimore, MD, 21205
Radiology; 141(1):87-91 1981

We report the radiographic and clinical findings of five infants and children who had the combination of male pseudohermaphroditism, progressive nephritis, and Wilms tumor. The components of this syndrome are so striking that the radiologist can often suggest the diagnosis mo to yr before all three components are apparent, if proteinuria, hypertension, or an abdominal mass develop in any chil d with male pseudohermaphroditism. Since the progressive renal failure probably can be managed by dialysis or renal transplantation in some cases, prompt recognition and treatment of the Wilms tumor may permit the child to live a long and relatively normal life. (Author abstract) (9 Refs)

4. CONGENITAL MESOBLASTIC NEPHROMA. STUDY OF FIVE CASES AND REVIEW OF LITERATURE.

Rosa B, Royon M, Gubler JP, Abelanet R
Laboratoire d'Anatomie Pathologique de Pediatrie Chirurgicale, Hopital Saint-Vincent-de-Paul, 74, av. Denfert-Rochereau, 75674 Paris Cedex 14, France
Arch Anat Cytol Pathol; 29(4):208-214 1981

The developmental and pathological characteristics of congenital mesoblastic nephromas (CMNs) as observed in 5 patients and as discussed in the literature are considered. A total of 106 cases are considered. CMNs are found in infants less than 3 mo of age. CMNs most often occur in males (50 cases) than in females (34 cases). Maternal hydramnios was observed in 3/5 of the new cases in 13% of those reported in the literature. Prematurity (18 cases) was a common finding. CMN is manifested by a unilateral abdominal mass. In certain cases it is associated with arterial hypertension, vomiting, cyanosis, or episodes of cardiac decompensation. Iv urography is essential for diagnosis of CMNs. Pathological findings are based on tissue obtained by nephrectomy (80%) or necroscopy (11%). In 9% of the cases no pathological study was performed. CMNs are most often located on the anterior side of either kidney and are often voluminous. CMNs are not limited by the adjacent renal parenchyma and are usually gray-white or gray-yellow. CMNs predominantly contain intertwined bundles of fusiform cells. The differential diagnosis of CMNs and nephroblastomas is discussed. (53 Refs) (In FRE)

5. TESTICULAR TUMORS IN CHILDREN: INCIDENCE, ONSET, WORKUP, AND TREATMENT.

Altwein JE, Smith PJ, Basting R
Abteilung Urologie, Bundeswehrkrankenhaus Ulm, Postfach 1220, 7900 Ulm/Donau, W. Germany
Aktuel Urol; 12(4):139-145 1981

Testicular tumors occur in 1.04/ million white American males under the age of 15 yr. They arise from faulty sexual differentiation. Eight original cases and 606 from the literature are reviewed. Tumors are classified as germinal cell (yolk-sac tumors, teratomas, or seminomas) or non-germinal cell (Leydig cell tumors, Sertoli cell tumors, rhabdomyosarcomas, or gonadoblastomas). Nearly 60% of all tumors are yolk-sac tumors, occurring usually during the first 3 yr of life. Metastases occurred in 18% of the cases. The most important diagnostic indicator is the measurement of alpha-fetoprotein (AFP), which was observed to be abnormal in 13 of 14 cases. Other diagnostic methods of value include thermography, Doppler sonography, computer tomography, and the detection of fever, inflammation, and visible tumors. Treatment by orchiectomy alone yields a survival rate of 66%. Retroperitoneal lymphadenectomy improved this to 85%. Radiation therapy following orchiectomy raises the survival rate to 89%. The T2 therapy of Exelby, combining orchiectomy, retroperitoneal lymphadenectomy, radiation, and chemotherapy produces the best results, with a survival rate of 94%. (101 Refs) (In GER)

6. GRANULOSA THECA CELL TUMORS IN PREMENARCHAL GIRLS: A CLINICAL AND PATHOLOGIC STUDY OF TEN CASES.

Lack EE, Perez-Atayde AR, Murthy AS, Goldstein DP, Crigler JF, Vawter GF

Dept. Pathology, Children's Hosp. Medical Center, 300 Longwood Ave., Boston, MA, 02115

Cancer; 48(8):1846-1854 1981

Granulosa theca cell tumor (GTCT) in the premenarche accounted for 7% of all ovarian tumors treated at the Children's Hospital Medical Center from 1928 through 1979. The av age of the 10 girls at the time of diagnosis was 5 yr (range 11 mo-12 1/2 yr) with precocious 'pseudopuberty' and an abdominal mass being the most common presentation. GTCTs were solitary (5 right, 5 left) with an av diameter of 12.1 cm. Histologic examination showed a predominantly diffuse or solid pattern with prominent luteinization; Call-Exner bodies and folded ('coffee-bean') nuclei were inconspicuous. Ultrastructural examination of one GTCT confirmed the presence of both granulosa and theca components with the latter showing extensive luteinization; estradiol, testosterone and prolactin were demonstrated in the same tumor using immunologic techniques. The av follow-up time was 21 yr with 9 of the 10 patients being followed for more than 10 yr. Salpingo-oophorectomy resulted in cures despite the occurrence of tumor spillage in two patients. The prognosis for GTCTs in the premenarche appears more favorable than for those occurring in adulthood, but further study is needed to completely define their full biologic potential; the significance of subsequent breast cancer in two long-term survivors merits further investigation as well. (Author abstract) (24 Refs)

NEUROBLASTOMAS AND CNS TUMORS

7. CHEMOTHERAPY OF ADVANCED NEUROBLASTOMA: DOES ADRIAMYCIN CONTRIBUTE?

Ninane J, Pritchard J, Malpas JS

(c/o Pritchard), Hosp. Sick Children, Great Ormond St., London WC1N 3JH, England

Arch Dis Child; 56(7):544-548 1981

Between 1970 and 1977, 69 children with newly diagnosed stage III or IV neuroblastoma were treated with pulses of either cyclophosphamide and vincristine (CV) (n = 23), or cyclophosphamide, vincristine, and adriamycin (CVA) (n = 46). The 'complete' and partial response rates were 35 and 22% to CV, and 43 and 26% to CVA. For 'complete' responders the median time to relapse was 18 mo for those treated with CV, and 17 mo for those treated with CVA; for partial responders the times were 5 and 7 mo respectively. At 2-1/2 yr only 17% of the CV patients and only 13% of the CVA patients were alive and free of disea se, giving a 15% overall survival rate. The addition of adriamycin to cyclophosphamide and vincristine did not significantly improve the response rate, duration of response, or survival in these children with advanced neuroblastoma. The previously noted favorable effects of age less than 1 yr at diagnosis and of female sex were confirmed. The equally poor survival for Stage III and Stage IV patients justifies the inclusion of Stage III patients in a bad prognosis group. (Author abstract) (21 Refs)

8. NONSURGICAL TREATMENT OF INTRASPINAL NEUROBLASTOMA.

Molofsky WJ, Chutorian AM

Coll. Medicine and Dentistry of New Jersey, MSB H-510, 100 Bergen St., Newark, NJ, 07102

Neurology; 31(9):1170-1173 1981

Two male infants with myelographically documented intraspinal extension of neuroblastoma, but only minimal neurologic deficit, were successfully treated without laminectomy. In one patient myelogram revealed a left paraspinal mass with large extradural impression from T3-T6 and displacement of the spinal cord to the right. The mass was partially excised. Postoperatively the patient remained well and was treated with 800 rad to the tumor bed and spine. Studies at 4 mo were normal; at 10 mo the lumbar, thoracic, and cervical myelograms were normal. After 5 yr no abnormality was noted. In the second patient, various studies including skeletal survey and myelogram revealed a large retroperitoneal calcified mass, mainly on the right but with some extension to the left; involved areas included pedicles T9-T12 and extended from L1 through T9. Dexamethasone (DEX; 50 mg) was given before exploratory laparotomy. Laparotomy revealed a large mass originating in the paravertebral area in the chest, and extending through both diaphragms and across the midline beneath aorta, vena cava, pancreas, and both adrenals. The patient did well postoperatively; DEX was reduced gradually and polychemotherapy and a course of radiation were administered. After approx 3 mo examination was unremarkable; muscle tone in the legs was normal and myelogram gave no evidence of tumor. Chemotherapy was continued and approx 6 mo later the patient was free of neurologic abnormality. (19 Refs)

9. INTRAPLEURAL THERAPY OF MALIGNANT PLEURISY IN PATIENTS WITH NEUROBLASTOMA.

Ha K, Tawa A, Ikeda T, Tanaka J, Okada A, Yabuuchi H

Dept. Pediatrics, Osaka Univ. Sch. Medicine, Fukushima 1-1-50, Fukushima-ku, Osaka 553, Japan

Med Pediatr Oncol; 9(4):355-359 1981

Three children with advanced neuroblastoma developed pleural effusion in the course of their disease. This unusual complication was successfully treated with intrapleural administration of a nonspecific 'immunostimulatory' agent; cell wall skeleton of Nocardia rubra (N-cws). The side effects of this procedure were mild and well tolerated even in infants in spite of their terminal stage. I ntrapleural therapy in this study seemed to be useful for the treatment of pediatric malignant pleurisy. (Author abstract) (16 Refs)

10. MYELOGRAPHY AND CYTOLOGY IN THE TREATMENT OF MEDULLOBLASTOMA.

Deutsch M, Reigel DH

Joint Radiation Oncology Center, 3601 Fifth Ave., Pittsburgh, PA, 15213

Int J Radiat Oncol Biol Phys; 7(6):721-725 1981

Postoperative myelograms revealed asymptomatic spinal cord involvement in 8/22 children with newly diagnosed medulloblastoma. Two additional patients with recurrence in the posterior fossa also had cord lesions detectable by myelography. Cerebral spinal fluid (CSF) cytology findings were inaccurate in predicting cord involvement: presence of malignant cells in the CSF varied according to sampling site and time relative to posterior fossa surgery. All children with newly diagnosed tumors were treated with radiotherapy to the entire cranial-spinal axis (minimum 3,000 rad/20 treatments) and posteri-

or fossa (5,000-5,400 rad); demonstrable spinal cord lesions were boosted to a total dose of 3,900-4,500 rad. The two children with recurrent tumors were treated with radiotherapy and/or chemotherapy, but died within 4 mo of relapse. Of the 19 children followed greater than 1 yr post-diagnosis, 7 relapsed 9-69 mo after the completion of radiotherapy. Three had initial spinal cord involvement and also cord involvement at the time of intracranial recurrence. The frontal lobe was the site of recurrence in three patients. Computed tomography scans resulted in early detection of intracranial recurrence in three patients. All were retreated with radiotherapy in conjunction with misonidazole and subsequent chemotherapy; they are alive and clinically disease-free 10, 18, and 19 mo after relapse. (3 Refs)

11. INTRATUMORAL HEMORRHAGE AFTER A VENTRICULOPERITONEAL SHUNTING PROCEDURE.

Waga S, Shimizu T, Shimosaka S, Tochio H, Epstein F, Page LK
Dept. Neurosurgery, Mie Univ. Medical Sch., 2-174 Edobashi, Tsu, Mie 514, Japan
Neurosurgery; 9(3):249-252 1981

Four cases of intratumoral hemorrhage after a ventriculoperitoneal shunting procedure for obstructive hydrocephalus caused by a brain tumor are presented. Massive intratumoral hemorrhage and unconsciousness occurred 5 hr after shunting of an 18-yr-old woman with an unverified pineal tumor and immediately after shunting in a 6-yr-old girl with malignant astrocytoma of the thalamus. The woman never regained consciousness and died 1.5 mo later; the girl died 3 days posteroperatively. A small intratumoral hemorrhage with neurological deterioration developed 7 days after shunting in a 3-yr-old boy with glioblastoma of the thalamus and immediately after shunting in an 11-yr-old boy with a cerebellar astrocytoma. Only the latter patient had a tumor in close proximity to the incisura tentorii. Ventricular dec ompression is the likely cause of the intratumoral hemorrhages in these cases. Shunting or ventricular drainage may cause a rapid, but minimal distortion of the intracranial structures and a sudden imbalance between the intracranial and intratumoral pressures, leading to vascular insufficiency, venous congestion, and then hemorrhage within the tumor. (10 Refs)

12. QUALITY OF LONG-TERM SURVIVAL FOLLOWING IRRADIATION FOR INTRACRANIAL TUMORS IN CHILDREN UNDER THE AGE OF TWO.

Spunberg JJ, Chang CH, Goldman M, Auricchio E, Bell JJ
Dept. Radiation Therapy, Albert Einstein Medical Center, York and Tabor Roads, Philadelphia, PA, 19141
Int J Radiat Oncol Biol Phys; 7(6):727-736 1981

Survival rates, quality of survival, and late radiation sequelae were studied retrospectively in 38 patients who received CNS irradiation alone or postoperatively for primary intracranial tumors at age 3-24 mo. The children included 21 females and 17 males. Twenty-four deaths were attributable to the primary disease or its complications. The 5-, 10-, and 15-yr absolute survival rates were 50%, 39%, and 38%, respectively. Posterior fossa tumors had the best prognosis. The 14 patients who are still alive have a mean survival of 12.9 yr (range 5-20 yr). Four of these patients had late recurrence of the primary tumor requiring additional radiotherapy and/or surgery. Of the long-term survivors, 8 have minimal or no neurologic deficits, 11 are within the educable range on formal intelligence tests, and 12 have a Karnofsky performance score of 70 or greater. Clinical evidence of endocrinologic dysfunction is limited to growth retardation in three children who received doses greater than 3,600 rad to the hypothalamic-pituitary region. On a 'Composite Quality of Survival Scale,' graded 1 to 5, eight patients rated grade 3 or better, with three patients essentially normal. The data indicated that children less than 2 yr tolerate cranial radiotherapy better than previously believed; however, further optimization of radiotherapy factors (dose, time, vol) is essential to minimize the potential late effects of CNS radiation. (63 Refs)

LYMPHOMAS AND LEUKEMIAS

13. PRETREATMENT TESTICULAR BIOPSY IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKAEMIA.

Kim TH, Brynes RK, Lui VK, Hargreaves HK, Hawkins HK, Woodard J, Ragab AH
Dept. Pediatrics, Emory Univ. Clinic, 1365 Clifon Road, Atlanta, GA, 30322
Lancet; 2(8248):657-658 1981

Between August, 1978, and March, 1981, 24 boys with acute lymphocytic leukemia (ALL) (14 non-B-cell non-T-cell, 6 pre-B-cell, and 4 T-cell) underwent bilateral wedge testicular biopsy at initial diagnosis. All testes were of normal size. Histological analysis was performed independently by three pathologists, 4 (3 non-B non-T, and 1 pre-B) of 20 patients with non-T-cell ALL demonstrated testic ular focal lymphoblastic involvement. Successful induction chemotherapy without concomitant testicular irradiation completely eradicated testicular infiltrates in all four patients. Only one of the four T-cell patients had pre-treatment testicular infiltrates. Unlike boys with non-B non-T leukemia, attainment of bone-marrow remission in this patient was associated with persistent testicular disease. These preliminary data indicate that in patients with ALL of non-T cell type, systemic induction chemotherapy eradicates the small testicular infiltrates of lymphoblasts. Prophylactic testicular irradiation in this group of patients does not seem to be warranted. (Author abstract) (10 Refs)

14. A COMPARISON OF MARROW TRANSPLANTATION WITH CHEMOTHERAPY FOR CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA IN SECOND OR SUBSEQUENT REMISSION.

Johnson FL, Thomas ED, Clark BS, Chard RL, Hartmann JR, Storb R
Div. Hematology-Oncology, St. Jude Children's Res. Hosp., P. O. Box 18029, Memphis, TN, 38101
N Engl J Med; 305(15):846-851 1981

Twenty-four children with acute lymphoblastic leukemia (ALL) treated with cyclophosphamide, total-body irradiation, and marrow transplantation during a second or subsequent remission were followed for 17-55 mo; their progress was compared with that of 21 children treated with conventional chemotherapy during second or subsequent remission. During the follow-up period, 9/24 patients receiving marrow transplantation remained in complete remission, both in the blood and in the CNS, while 1/21 patients treated with conventional chemotherapy remained in remission after 20 mo. In the transplant group, 8/9 in continuing remission were well, not receiving maintenance therapy, and not requiring outpatient follow-up more often than every 1-3 mo. The one child receiving conventional chemotherapy who remained in remission required outpatient follow-up chemotherapy every 2 wk. Overall, in the transplantation group, 46% are alive, 38% have never relapsed,

and 33% are well, compared with 10% alive, 5% in remission, and 5% well in the chemotherapy group. The major cause of failure in both groups was relapse. Acute and chronic graft-vs-host disease in the transplantation group and leukoencephalopathy in both groups were the major causes of morbidity and mortality. Thus, marrow transplantation offers the best chance of long-term remission and potential cure in the child with ALL in second or subsequent relapse. (19 Refs)

15. CHEMOIMMUNOTHERAPY WITH LEVAMISOLE IN ACUTE LYMPHOBLASTIC LEUKEMIA.

Pavlovsky S, Muriel FS, Garay G, Svarch E, Braier J, Lagarde M, Scaglione C, Eppinger-Helft M, Failace R, Dibar E
Instituto de Investigaciones Hematologicas, Pacheco de Melo 3081, 1425 Buenos Aires, Argentina
Cancer; 48(7):1500-1507 1981

Patients with acute lymphoblastic leukemia (ALL) who were in two consecutive pro tocols and in complete remission (CR) with maintenance therapy, were randomized to receive or not receive levamisole. A total of 15 of 55 low-risk patients of protocol 10-LLA-72 with levamisole had relapses, compared with 25 of 54 not receiving levamisole; 67 and 49%, respectively, remain in CR at 48 mo (p less than 0.025). In protocol 1-LLA-76, 14 of 91 low-risk patients on levamisole and 25 of 93 patients not receiving levamisole had relapses; 78 and 61%, respectively, remain in CR at 36 mo (p less than 0.05). Seventeen of 39 high-risk patients (children with a WBC count higher than 50,000 and adults) receiving levamisole had relapses compared with 37 of 61 not on levamisole. The DNCB skin test shows at 18 and 24 mo a 74 and 85% positivity in the levamisole group vs a 38 and 35% positivity in the control group (p less than 0.025). We conclude that levamisole prolongs the duration of CR and survival in low-risk patients with ALL. (Author abstract) (35 Refs)

16. PHAGOCYTIC ACTIVITY OF NEUTROPHIL LEUKOCYTES AND MONOCYTES DURING THE REMISSION OF ACUTE LEUKEMIA AFTER CHEMOTHERAPY AND IMMUNOTHERAPY WITH BCG VACCINE AND LEVAMISOLE.

Dosimov ZhB, Skorobogatova OV, Rumiantsev AG, Eremeev VS
Dept. Pediatrics, N. I. Pirogov Second Medical Inst., Moscow, USSR
Pediatriia; (8):26-28 1981

Phagocytic activity (PA) of neutrophils and monocytes was studied in 42 children (aged 3 to 14 yr) with acute lymphoid leukemia. All patients were in complete remission of 6-36-mo duration; the patients received continuous maintenance chemotherapy and/or immunotherapy with BCG vaccine and levamisole. There was a marked inhibition of PA of neutrophils and monocytes in the patients undergoing chemotherapy. PA of monocytes in children undergoing immunotherapy with BCG vaccine was comparable to that in healthy controls. (20 Refs) (In RUS)

17. EXAMINATION OF HEMATOPOIETIC STEM CELLS IN LEUKEMIA IN CHILDREN (MEETING ABSTRACT).

Saito K, Ando H, Yagi Y, Norose N, Koike K, Nakahata R, Akabane T
Dept. Pediatrics, Faculty Medicine, Shinshu Univ., Matsumoto-shi, Nagano Prefecture 390, Japan
Program and Abstracts of the 84th Annual Congress of Japan Pediatric Society held in Tokushima, Japan, 15-17 May, 1981. Japan Pediatric Society, Tokyo 160, Japan, 398 pp., 1981.

The bone marrow and peripheral blood of 61 children with acute lymphatic leukemia, 18 with acute blastocytic leukemia, 26 with acute myelogenous leukemia, 3 with acute monocytic leukemia, 2 with adult chronic myeloid leukemia and 1 with juvenile chronic myeloid leukemia were examined for changes in the hematopoietic stem cells during the course of the disease. The bone marrow and blood obtained from five patients with nonhemopathy were used as the control. The colony forming units in culture (CFU-C) and CFU in RBC (CFU-E) were markedly decreased during progressive period of acute leukemia. CFU mixture cells were seen in one patient. The av value of CFU-C and CFU-E was slightly reduced at the partial remission period. There was no significant difference between the hematopoiesis of the patients with leukemia at the period of complete remission, and that of the control. CFU-C was decreased in the patient who had relapse within 2 mo after examination. Colony formation (CFU-C and CFU-E) was within the normal range for the patients who were off therapy. The effect of leukemia cells on CFU-C was examined by mixing 1-2 x 10(5) ml of the cells with the control myeloid cells before the reaction. No significant difference was seen in the number of colonies formed with or without the addition of the blastocytes. Therapy to introduce remission consisting of L-asparaginase decreased the number of colonies, but not significantly. There was no clear difference between any of the maintenance therapy protocols in their effect on hematopoiesis. Irradiation of the skull and mediastinum did not inhibit colony formation. The CFU-C in the peripheral blood was increased in adult chronic myelogenous leukemia. In juvenile chronic myelogenous leukemia the CFU-C of the bone marrow and peripheral blood was increased. Most of the colonies consisted of monocytes and macrophages. (no Refs) (In JPN)

18. LATE MARROW RECURRENCES IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA.

Chessells JM, Breatnach F
Dept. Haematology, Hosp. for Sick Children, Great Ormond St., London WC1N 3JH, England
Br Med J; 283(6294):749-751 1981

Thirty children with acute lymphoblastic leukemia had a recurrence in the bone marrow after treatment was stopped electively. A second hematological remission was achieved in 27 (90%), and the median duration of remission was shortest (6 mo) in those relapsing within 6 mo of stopping treatment. Four of six children relapsing over 1 yr after stopping treatment remained in second hematological remission. Leukemic infiltration of the CNS developed in four patients remaining in marrow remission. It is concluded that conventional chemotherapy is unlikely to be effective in children with acute lymphoblastic leukemia who relapse soon after stopping treatment, that 'reprophylaxis' of the CNS probably with long-term intrathecal chemotherapy is essential, and that some patients relapsing after prolonged unmaintained remission may achieve long-term leukemia-free survival. (Author abstract) (10 Refs)

19. APPLICATION OF COMPUTER METHODS IN THE FOLLOW-UP OF THE THERAPY OF LEUKEMIA PATIENTS.

Revesz T, Vargha M, Keleti J, Petroczky A, Schuler D, Molnar A, Csanda L
Orszagos Csecsemo- es Gyermekegeszsegugyi Intezet, Budapest, Hungary
Orv Hetil; 122(28):1691-1695 1981

The use of computerized data processing methods in the follow-up of children with leukemia is described, and the results obtained by these methods in evaluation of 550 children treated for leukemia at the different units of the Hungarian

Childhood Leukemia Team during the period 1971-1978 are presented. Increased therapeutic experience, better substitution and adjuvant therapy, and CNS prophylaxis have led to a significant prolongation of survival in 1973 compared with the 1971-1972 results, but there has been no more significant prolongation of the survival form the 1973 level in later yr. Massive organ infiltration, high initial blast count (exceeding 50,000-100,000/ul) mediastinal tumor, CNS involvement and low initial leukocyte count (below 1,000/ul) were found to unfavorable prognostic signs. Age was also a prognostic factor: the survival was longest in the age bracket 2-4 yr, while a considerable percentage of the patients under 1 yr and beyond 12 yr was resistant to the therapy. A retrospective study of the survival curves of the high-risk and av-risk groups treated by the same method during the period 1973-1975 showed a significantly shorter survival of the high-risk patients. The 5-yr survival rate of the patients with good prognosis was nearly 50%, while that of patients with poor prognosis during the period 1975-1977 failed to improve the results in this group. (8 Refs) (In HUN)

20. CHARACTERISTICS OF CHILDREN WITH ACUTE NONLYMPHOCYTIC LEUKEMIA IN LONG-TERM CONTINUOUS REMISSION: A REPORT FOR CHILDRENS CANCER STUDY GROUP.

Baehner RL, Kennedy A, Sather H, Chard RL, Hammond D
Childrens Cancer Study Group Operations Office, 1721 Griffin Ave., Los Angeles, CA, 90031
Med Pediatr Oncol; 9(4):393-403 1981

Children and young adults less than 18 yr of age with acute nonlymphocytic leukemia who remained in long term bone marrow and extramedullary remission for two yr or longer since starting maintenance were compared to the remaining responders for the following characteristics: cell type, sex, age at diagnosis, race, pretreatment, white blood count, length of time from start of induction therapy to achievement of an M1 marrow, marrow rating at day 56 of therapy, marrow rating at the start of maintenance therapy, and specific study. Forty-eight patients of a group of 333 qualified as having long term remission (14.4%). Multivariant analysis indicated that patients between the ages of 3 and 10 yr ($p = 0.003$) as well as the length of time to achieve an M1 marrow from the start of treatment ($p = 0.03$) were the only characteristics associated with achievement of a long term remission. Maintenance therapy was discontinued in 15 patients from 2.5 to 4.8 yr after start of maintenance and all patients remained in bone marrow remission for periods from 0+ to 3.0+ yr after stopping treatment. Of the 33 who have remained on a continuous maintenance therapy 12 have had bone marrow relapses. These data confirm the prognostic value of age and length of time to achieve remission during induction in acute nonlymphocytic leukemia and suggest that there may be no significant benefit from maintenance therapy continued beyond 2 yr for patients in their initial remission. (Author abstract) (14 Refs)

21. ACUTE LYMPHOBLASTIC LEUKEMIA IN SWEDISH CHILDREN 1973-1978.

Gustafsson G, Kreuger A, Dohlwitz A
Dept. Paediatrics, Univ. Hosp., S-750 14 Uppsala, Sweden
Acta Paediatr Scand; 70(5):609-614 1981

Three hundred and sixty-seven children with acute lymphoblastic leukemia have been diagnosed in Sweden 1973-1978, 345 of whom were treated according to the national uniform regimens of the Swedish Child Leukemia Group (SCLG). The patients were classified into an SR (standard risk) and an IR (increased risk) group. Remission was obtained in 354 patients (96%). With 12-84 mo observation time the total survival was 54% and the disease free survival 44%. A more intensive cytostatic regimen in the induction period increased considerably the disease free survival for SR and to some extent also for the IR patients. Relapses were significantly more common in the IR group in spite of a more intensive cytostatic regimen. The most decisive IR criteria were B-LPK and age at diagnosis. Prognosis was significantly worse for boys in all groups. After 3 yr in CCR treatment was discontinued in 95 out of 246 children (38%) of whom 19 later relapsed (20%). (Author abstract) (6 Refs)

22. PROPHYLAXIS OF BACTERIAL INFECTION BY SULFAMETHOXAZOLE-TRIMETHOPRIM (SMX-TMP) DURING CHEMOTHERAPY IN PATIENTS WITH CHILDHOOD ACUTE LEUKEMIA.

Tono-oka T, Nakayama M, Ohkawa M, Nakajima T, Takeda T, Matsumoto S
Dept. Pediatrics, Hokkaido Univ. Sch. Medicine, Sapporo 060, Japan
Tohoku J Exp Med; 134(3):273-279 1981

During induction chemotherapy, a combination of sulfamethoxazole and trimethoprim (SMX-TMP) was given po to 13 children (0.5-13 yr old) with acute leukemia on 16 occasions of hospitalization for prophylaxis of bacterial infection. Fourteen children with acute leukemia treated at an earlier period were used as a control group. The SMX-TMP group received 40 mg SMX and 8 mg TMP per kg per day, po, during induction chemotherapy. There were no definite differences in the methods of chemotherapy and supportive therapy between the two groups of patients. Slightly more episodes of neutropenia were noted in the SMX-TMP group than in the controls. Fever was experienced for 14.6% of the total hospital days by the control group compared to 6.6 days in the SMX-TMP group. In the control group approx 50% of the febrile episodes were due to definite infections, while most of the episodes in the SMX-TMP group were due to fever of unknown origin. In the control group, the frequency of one infection per one hospitalization was 1.0, and in the SMX-TMP group it was 0.25. In the control group, many of the infections were major, name ly sepsis and pneumonia. In the SMX-TMP group, all the episodes of infection were minor such as urinary tract infection and otitis media. Thus, the administration of SMX-TMP to leukemic children during chemotherapy is recommended. (12 Refs)

23. IMMUNITY TO VARICELLA-ZOSTER VIRUS IN CHILDREN WITH ACUTE LEUKEMIA OR OTHER MALIGNANCIES. PART 2. FOLLOW-UP STUDY ON IMMUNITY TO SPECIFIC VARICELLA-ZOSTER VIRUS AFTER VACCINATION OF LIVE VARICELLA VACCINE IN CHILDREN WITH ACUTE LEUKEMIA OR OTHER MALIGNANCIES.

Ihara T
Dept. Pediatrics, Mie Univ., Tsu, Mie 514, Japan
Shonika Kiyo; 27(1):42-43 1981

Various doses of live varicella virus vaccine were given to 16 healthy children, 37 children with acute lymphocytic leukemia, 1 with acute myelocytic leukemia, 4 with retinoblastoma, 3 with neuroblastoma, and 1 with malignant lymphoma to determine the optimal dose and the clinical response to the vaccination. The leukemic children responded well to doses of 100-1,500 PFUs. Live varicella vaccine was observed to be safe and effective about 6 mo after the complete remission of leuke-

mia in leukemic children who were in hematological remission and in good immunological status. (no Refs)

24. DENTAL CARE IN CHILDREN WITH ACUTE LYMPHOCYTIC LEUKEMIA.

Bertolone SJ, Burzynski NJ, Borden D
Dept. Pediatrics, Children's Hosp., 200 East Chestnut St., Louisville, KY, 40202
South Med J; 74(8):976-978 1981

To evaluate the dental status of children with acute lymphocytic leukemia in their first remission, we divided 41 children into age groups in accordance with the National Dental Health Survey. We used the DMF (decayed, missing, filled) index to evaluate dental disease and status of oral hygiene. The study groups had higher DMFs (2.2 vs 1.4), more decayed teeth (4.2 vs 1.7), and fewer filled (1.5 vs 3.8) teeth than the national av. There is no direct evidence that antileukemic therapy causes dental decay per se, but the level of oral hygiene may be substandard in children with acute lymphocytic leukemia. (Author abstract) (17 Refs)

25. HETEROGENEITY OF LYMPHOBLASTIC MALIGNANCIES IN CHILDREN.

Habeshaw JA, United Kingdom Childhood Cancer Study Group
St. Bartholomew's Hosp., West Smithfield, London EC1A7BE, England
J Cancer Res Clin Oncol; 101(1):23-27 1981

Lymphocyte surface markers were studied in 6 children with null cell lymphoblastic lymphomas (LLs), 16 with T cell LLs, and 15 children with B cell LLS. The null cell tumors showed a phenotype of acute lymphoblastic leukemia (ALL) antigen+ Ia antigen+ and terminal deoxyribonucleotidyl transferase (TdT)+. The T cell tumors showed three major phenotypic subgroups: HTLA+, E rosette-, TdT+, and occasional ALL cells (prethymic phenotype); E rosette+, HTLA+, and Tdt+ (thymic cortical phenotype); and E roset te+-, HTLA+, complement 3d+, and TdT- (fetal thymic phenotype). Most B cell tumors had the phenotype of surface IgM immunoglobulins with or without cytoplasmic IgM, and which may express ALL antigen. A small group of B cell tumors expressed the surface IgM and complement 3d phenotype reminiscent of adult follicular lymphoma. The phenotypic heterogeneity found in these children indicated that further studies will be needed before an adequate histologic and phenotype classification of these malignancies can be developed. (no Refs)

26. CHILDHOOD NON-HODGKIN'S LYMPHOMA: LONG-TERM RESULTS OF AN INTENSIVE CHEMOTHERAPY REGIMEN.

Gasparini M, Lombardi F, Bellani FF, Gianni C, Pilotti S, Rilke F
Istituto Nazionale Tumori, Via Venezian, 1 20133 Milan, Italy
Cancer; 48(7):1508-1512 1981

Twenty-nine consecutive children with untreated non-Hodgkin's malignant lymphoma were admitted to Istituto Nazionale Tumori of Milan during the period from 1974 through 1976 and underwent treatment with chemotherapeutic regimens consisting of Adriamycin, Cytoxan, vincristine, and prednisone (2 mo induction phase) and 6-mercaptopurine, methotrexate, Adriamycin, vincristine and prednisone (maintenance phase). Each patient, regardless of clinical stage or histologic subgroup, was given the same chemotherapy. The complete response rate was 66%. Due to the high incidence of recurrence of the initial bulky lymphomatous mass and of spread to the central nervous system (CNS), local radiotherapy was given to 10 children and CNS prophylaxis (brain radiotherapy + intrathecal methotrexate) to 11 children. After a follow-up period in excess of 40 mo, there were five disease-free survivors (17%). Each patient who had a relapse died from the disease. The main reason for first treatment failure was relapse at the level of the primary bulkly tumor site or spread to the CNS. This type of CNS prophylaxis did not prevent relapse at this site. (Author abstract) (16 Refs)

27. MEDIASTINAL LYMPHOBLASTIC LYMPHOMA IN CHILDHOOD.

Kajtar P, Weisenbach J, Pap T, Molnar S, Varbiro M
Gyermekklinika, Pecsi Orvostudomanyi Egyetem, Pecs, Hungary
Orv Hetil; 122(29):1751-1755 1981

Mediastinal T-lymphoblastic lymphoma was diagnosed in seven children (six boys and 1 girl, 3-10 yr old, av age 6.6 yr) during a 10-yr period. Bone marrow infiltration was found in four cases at the time of diagnosis, and in two more cases later. The initial leukemia leukocyte count was 4,600-490,000/cubic mm. Infiltration of various organs (kidney, esophagus, liver, spleen, CNS, testicle, eye) was found in six cases. One patient received single-agent chemotherapy with prednisolone (PR), three others received polychemotherapy (usually with vincristine, PR, and L-asparaginase), and three received chemotherapy with radiotherapy. The length of remission was unknown in one case; it was 0 mo in two cases, and 1-11 mo in four. The length of survival was 1.5-21 mo. The acid phosphatase test was focally positive, indicative of T-cell properties, and tumor cell nuclei with convoluted surface were found. The findings indicate that mediastinal lymphoblastic lymphoma in childhood is characterized by an increased frequency in boys and at advanced age, as well as by poor prognosis. Long-term intensive polychemotherapy similar to that of acute lymphoblastic leukemia is justified even if the neoplastic process seems to be circumscribed initially. (42 Refs) (In HUN)

28. SKELETAL LESIONS IN HODGKIN'S DISEASE. REVIEW OF LITERATURE AND CASE REPORTS.

Appell RG, Oppermann HC, Brandeis WE
Rontgenabteilung, Universitats-Kinderklinik, Im Neuenheimer Feld 150, D-6900 Heidelberg 1, W. Germany
Pediatr Radiol; 11(2):61-65 1981

Skeletal lesions in Hodgkin's disease can be due to different underlying causes. Reports on bone changes in Hodgkin's disease are reviewed and compared with two of our patients. The first patient, a 14 yr old girl with Hodgkin's disease, staged IV B, had skeletal involvement at the time of diagnosis. The other patient developed, 3 1/2 yr after the onset of the disease, bone lesions which might have been thought to be a manifestation of Hodgkin's disease. But by bacteriologic and histologic studies salmonella osteomyelitis could be proven. (Author abstract) (46 Refs)

29. EPSTEIN-BARR VIRUS INFECTION AND NEOPLASIA.

Sprinkle PM, Veltri RW
Dept. Otolaryngology, West Virginia Univ., Morgantown, WV
Otolaryngol Head Neck Surg; 89(4):542-544 1981

Conclusive serological data of activation of Epstein-Barr virus (EBV) is reported showing persistently elevated early antigen (EA) titers prior to and following malignant transformation in a 6-yr-old boy. Heterophil-negative EBV disease characterized by lymphadenopathy and recurrent tonsillitis de-

veloped in the child 1 mo after his sister died with heterophil-negative infectious mononucleosis. Epstein-Barr nuclear antigen (EBNA) and EA were detected in many B-lymphocytes present in each of the same tissue specimens. One yr later, re-biopsy of the cervical nodes revealed typical Hodgkin's disease. EBNA and EA were found in hilar and celiac lymph nodes as well as in splenic lymphocytes. Serum antibody study demonstrated a 1:640 EA and 1:2,560 viral capsid antigen-IgG specific antibody to their EBV-coded antigens. Before and after the diagnosis of Hodgkin's disease, however, the patient's EA titers were persistently elevated and remained so. The child was alive with a poor prognosis after multiple chemotherapy courses and two courses of radiotherapy. The child's mother died in the interim with undifferentiated lymphoma. (16 Refs)

30. NUCLEAR MEDICINE STUDIES IN EVALUATION OF SKELETAL LESIONS IN CHILDREN WITH HISTIOCYTOSIS X.

Siddiqui AR, Tashjian JH, Lazarus K, Wellman HN, Baehner RL
Div. Nuclear Medicine, Dept. Radiology, Indiana Univ. Medical Center, Indianapolis, IN, 46223
Radiology; 140(3):787-789 1981

Radiographs were compared with 99mTc scans of the bones and bone marrow as well as 67Ga-citrate scans to evaluate their sensitivity in identifying skeletal lesions in 21 children with histiocytosis X. Seven of 20 bone scans were completely normal in patients with extensive radiographic evidence of skeletal disease. In only one patient were bone scan changes demonstrated prior to radiographic abnormalities. None of the lesions was 'cold' on the bone scans. 99mTc-sulfur colloid bone marrow scans and 67Ga-citrate whole-body scans were not valuable. Radiographic survey of the skeleton should be the primary diagnostic test employed in patients with histiocytosis X who have suspected skeletal lesions. Bone scans should be obtained only when the radiographs are normal or equivocal. (Author abstract) (24 Refs)

31. MALIGNANT HISTIOCYTOSIS. A HISTOLOGICAL AND CYTO-PATHOLOGICAL STUDY OF TWENTY-FIVE CASES IN CHILDREN.

Caillaud JM, Bayle-Weisgerber C, Micheau C, Caillou B, Talbot M, Gerard-Marchant R
Service d'Histopathologie, Insitut Gustave-Roussy, Rue Camille Desmoulins, 94800 Villejuif, France
Arch Anat Cytol Pathol; 29(4):221-227 1981

Twenty-five patients (11 males, 14 females; 2-15 yr old) with malignant histocytosis (MH) are described. Lymph node biopsy permitted the diagnosis of MH in each of the patients. Macroscopically, the adenopathies were moderate in size with no tendency to agglutination. At sectioning, the lymph nodes were homogeneous and clear. The microscopic appearance of the lesions varied according to their developmental stage. The histopathological appearance of the spleen, liver, skin, bone marrow, and other tissue is described. The electron microscopic findings are discussed. The cyto-hematological, cytochemical, and cyto-immunohistological findings are also presented. The means of invasion by MH is considered, along with discussions of the difficulties in the diagnosis of MH and of the nature of tumor cells in MH. The results indicated that MH is different from the common malignant lymphomas but the actual histogenesis of the tumor cell remains to be determined. (39 Refs) (In FRE)

32. MORPHOLOGICAL AND CYTOCHEMICAL CHARACTERISTICS OF PERIPHERAL BLOOD MONOCYTES AND NEUTROPHILS IN CHILDREN WITH ADVANCED VARIANTS OF HISTIOCYTOSIS X.

Skorobogatova OV, Finogenova NA
Dept. Pediatrics, N. I. Pirogov Second Medical Inst., Moscow, USSR
Pediatriia; (8):32-36 1981

The functional state of the peripheral blood neutrophils and monocytes was studied in 38 children (25 boys, 13 girls; aged 2 mo to 15 yr) with histiocytosis X (HX). The changes recorded in the neutrophils were similar to those in children with bacterial infections. The changes in the circulating monocytes included predominance of immature cells, high level of peroxidase, decreased level of acid phosphatase and alpha-naphthylesterase, and increased level of glycogen. Functional insufficiency of monocytes was retained during the remission. Treatment with levamisole was found to normalize the functional activity of monocytes and to improve the general state of HX patients. (5 Refs) (In RUS)

33. RESULTS OF TREATMENT OF 127 PATIENTS WITH SYSTEMIC HISTIOCYTOSIS (LETTERER-SIWE SYNDROME, SCHULLER-CHRISTIAN SYNDROME AND MULTIFOCAL EOSINOPHILIC GRANULOMA).

Greenberger JS, Crocker AC, Vawter G, Jaffe N, Cassady JR
Dept. Radiation Therapy, Joint Center for Radiation Therapy, 50 Binney St., Boston, MA, 02115
Medicine (Baltimore); 60(5):311-338 1981

The results of therapy of 127 patients treated for systemic histiocytosis at the Children's Cancer Research Foundation and Sidney Farber Cancer Research Foundation and Sidney Farber Cancer Institute between the yr 1941 and 1975 were reviewed. Fourteen patients presented with single monostotic or multiple bone lesions (Stage I); 28 patients presented at age greater than 24 mo at diagnosis with one or more systems involved including diabetes insipidus, gingiva, lymph node, skin, pulmonary infiltrate, or focal bone marrow positivity (Stage II); 63 patients presented with diagnosis at less than 24 mo of age with multiple systems involved as in Stage II or were greater than 24 mo of age at diagnosis with involvement of liver and/or spleen, massive nodal involvement, or massive lung involvement, or packed bone marrow (Stage III). Fifteen patients presented with splenomegaly greater than 6 cm palpable and fever of greater than 1 mo duration (Stage IV); and a special group of 7 patients was noted to have peripheral blood monocytosis representing greater than 20% of the peripheral blood count in addition to Stage III or Stage IV findings (Stage V). Median follow-up was 8 yr with 20 patients followed for 22 yr. The data indicate that patients diagnosed prior to 24 mo of age had a significantly worse prognosis (42% 10-yr actuarial survival) compared to older patients (85%). Radiation therapy was of significant benefit in producing local control of painful or fracture-prone bone lesions and in reversing diabetes insipidus. There was an increased associated incidence of developmental abnormalities and mental retardation. Five patients developed second malignancies. The superior prognosis of patients with Stages I-III compared to Stage IV disease and the excellent survival of early-stage patients indicates that experimental and aggressive approaches might be properly directed at patients with Stage IV disease. (Author abstract) (76 Refs)

OTHER SOLID TUMORS OF CHILDHOOD

34. MALIGNANT MESOTHELIOMA IN CHILDREN: REPORT OF SEVEN CASES AND REVIEW OF THE LITERATURE.

Brenner J, Sordillo PP, Magill GB
(c/o Sordillo) 1275 York Ave., New York, NY, 10021
Med Pediatr Oncol; 9(4):367-373 1981

Seven children with malignant mesothelioma have been seen at Memorial Hospital since 1953. In six, the origin was at the pleura and in one at the peritoneum. None of the patients related a history of exposure to asbestos. Two patients lived more than five yr. The other five patients died within two yr of the diagnosis. Distant metastases were seen in four of the patients, including three who had metastases to brain. Surgery or radiotherapy were not effective in controlling the disease in most of the patients. One patient had a complete response to a combination of Adriamycin, cyclophosphamide, and vincristine and has remained free of disease for 5 1/2 yr. The seven cases are reviewed, as are the other 42 cases of malignant mesothelioma in children reported in the literature. (Author abstract) (21 Refs)

35. PRIMARY MALIGNANT LIVER NEOPLASMS IN CHILDREN.

Shabanov MA
Dept. Pathology of Human Tumors, All-Union Cancer Res. Center, Moscow, USSR
Arkh Patol; 43(7):84-90 1981

Literature data on the incidence, etiology, and pathogenesis of primary malignant liver neoplasms in children are reviewed. Frequent association between liver neoplasms and congenital defects is indicative of a similar pathogenetic mechanism of hepatoblastomas, Wilms' tumors, and adrenocortical tumors. Hepatoblastomas are predominant in children less than 3 yr, while hepatocarcinomas are predominant in children greater than 3 yr. Male:female ratio for hepatoblastomas is 2.5:1, compared with 11:1 for hepatocarcinomas. Histological classifications recognize anaplastic, embryonal, fetal, and adult cellular variants of primary liver tumors. Mixed hepatoblastomas contain epithelial and spindle like mesenchymal cells. Characteristic feature of hepatocellular carcinomas is the presence of giant multinuclear cells. (75 Refs) (In RUS)

OTHER RELATED CLINICAL STUDIES

36. EVALUATION OF THE INFERIOR VENA CAVA BY SONOGRAPHY AND VENOGRAPHY IN CHILDREN WITH RENAL AND HEPATIC TUMORS.

Slovis TL, Philippart AI, Cushing B, Das L, Perlmutter AD, Reed JO, Wilner HI, Kroovand RL, Farooki ZQ
Dept. Radiology, Children's Hosp. Michigan, 3901 Beaubien Blvd., Detroit, MI, 48201
Radiology; 140(3):767-772 1981

Ultrasonography was used to examine 81 children with intra-abdominal or retroperitoneal malignancies for tumor extension into the inferior vena cava (IVC). In seven of the 18 patients with Wilms tumors and 3 of the 7 patients with hepatic tumors, the IVC was sonographically abnormal. Venography was also performed in five patients with Wilms tumors. However, percutaneous transfemoral venacavography did not always allow differentiation between extrinsic compression and intracaval tumor. It is suggested that venacavography, when necessary, should be performed via the brachial vein route and that the catheter be advanced into the right atrium. If an injection in this chamber does not result in enough reflux into the retrohepatic IVC for adequate evaluation, the catheter should be advanced into the IVC and a second injection made. However, ultrasonography is the preferred modality for evaluation of the IVC in children because it is the most accurate method and is noninvasive. Real-time ultrasonography makes it possible to distinguish between tumor extension into the lumen of the IVC and extrinsic compression of the vessel. (Author abstract) (16 Refs)

37. PHASE II TRIAL OF CISPLATIN IN REFRACTORY CHILDHOOD CANCER: CHILDREN'S CANCER STUDY GROUP REPORT.

Baum ES, Gaynon P, Greenberg L, Krivit W, Hammond D
(c/o Hammond) Operations Office, Children's Cancer Study Group, 1721 N Griffin Ave., Los Angeles, CA, 90031
Cancer Treat Rep; 65(9):815-822 1981

A total of 114 children with solid tumors refractory to conventional therapy were evaluated for response and/or toxic effects after receiving cisplatin at doses of 3.0-4.5 mg/kg with aggressive hydration and mannitol diuresis every 3 wk; a minimum of two courses was required for evaluation of response (110 patients). Objective responses were noted in 18 patients: rhabdomyosarcoma (3), Wilms' tumor (3), osteogenic sarcoma (3), Ewing's sarcoma (2), neuroblastoma (1), undifferentiated sarcoma (1), hepatoblastoma (1), ovarian teratoma (1), hepatocellular carcinoma (1), embryonal carcinoma of the mediastinum (1), and thymoma (1). Twenty-six patients had some evidence of renal toxicity. Asymptomatic hearing loss was commonly found when audiometry was performed (8 of 18 patients tested). Eight additional patients had symptomatic hearing problems - tinnitus or hearing loss. Myelosuppression was mild. Hypomagnesemia and/or hypocalcemia were common but only one patient had symptoms. Cisplatin, administered at a dose of 3.0 mg/kg with aggressive hydration and mannitol diuresis, is reasonably well-tolerated. Its role in the therapy for those tumors against which it showes activity remains to be determined. (Author abstract) (18 Refs)

38. CT OF THE ADVERSE EFFECTS OF THERAPEUTIC RADIATION OF THE CENTRAL NERVOUS SYSTEM.

Kingsley DP, Kendall BE
Dept. Radiology, London Hosp., Whitechapal, London E1 1BB, England
AJNR; 2(5):453-460 1981

The computed tomographic features of radiation damage to the CNS as a result of radiation therapy were investigated. One child with acute lymphatic leukemia developed somnolence syndrome that was temporary. Permanent complications were more frequent, and included eight patients with histologically proven radionecrosis and one who developed a meningioma in the radiotherapy field, 13 who developed atrophy, three children who developed calcification of the basal ganglia, one necrotizing leukoencephalopathy, three with mineralizing microangiopathy, infarction due to radiation-induced vascular occlusion, abscess formation, and an acute agonal hemorrhage into areas of histologically proven radionecrosis. The most frequent early CT change of radiation damage is low attenuation in the white matter, which might be misinterpreted as due to tumor progression. The importance of appreciating the CT

changes in these conditions and recognizing their significance is emphasized. (39 Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

39. MALIGNANCY ASSOCIATED WITH CONGENITAL ADRENAL HYPERPLASIA.

Duck SC
(c/o) Pediatric Endocrinology, 1700 W. Wisconsin Ave., Milwaukee, WI, 53233
J Pediatr; 99(3):423-424 1981

Four patients with 21-hydroxylase deficiency adrenal hyperplasia (HDAH) who developed a malignant tumor are described. These patients were among 42 children from 36 families diagnosed as having HDAH. The diagnosis of HDAH was based on both elevated 17-ketosteroid and pregnanetriol levels and depressed 17-hydroxycorticosteroid levels. By the time of diagnosis the perirectal malignancy, proven by biopsy in Patient 1, had metastasized to the lungs. The patient died within 2.5 mo. The other three patients were thriving at the time of report: Patient 2 was disease free; Patient 3 underwent repeated spinal surgery for tumor regrowth in 1979 and continues to grow along the 25th to 50th percentiles; Patient 4 was responding appropriately after 14-18 scheduled mo of chemotherapy. Patient 3 also had juvenile schizophrenia and trisomy of the proximal segment of the long arm of chromosome 13. The coexistence of neoplasms in children with HDAH is discussed. (9 Refs)

40. LONG-TERM EFFECTS OF PRENATAL X-RAY OF HUMAN FEMALES. III. MORTALITY AND MORBIDITY.

Meyer MB, Tonascia J
(c/o Tonascia) Dept. Biostatistics, Johns Hopkins Univ. Sch. Hygiene and Public Health, 615 N. Wolfe St., Baltimore, MD, 21205
Am J Epidemiol; 114(3):327-336 1981

Experimental studies and long-term studies of humans exposed to ionizing radiation in utero and after birth show that these exposures increase the risk of cancer in childhood and in later life. A possible life-shortening effect has also been reported. This study followed to their mid-twenties 1,458 women in Baltimore, Maryland, and obtained responses from over 1,100 women in each group. Information about general health and specific diseases was obtained from questionnaires. Deaths were ascertained through family members and death certificates. Mortality rates were slightly higher among exposed than control women, and did not differ by gestational age at the time of exposure. Exposed women reported poor g eneral health significantly more often than controls. Specific diseases occurred similarly in the two groups, although exposed women reported more epilepsy or fits, more ovarian tumors, and more high blood pressure. The strong correlation between wt and high blood pressure and the heavier wt of exposed women seemed to account for this difference. In summary, these matched exposed and control women, followed to their mid-twenties, experienced similar rates of morbidity and mortality. Radiation-induced cancers and life-shortening effects, if any, might not become evident until older ages. (Author abstract) (21 Refs)

AUTHOR INDEX WITH CITATION NUMBERS

Abelanet R. 4
Akabane T. 17
Altwein JE. 5
Ando H. 17
Appell RG. 28
Auricchio E. 12
Baehner RL. 20
Baehner RL. 30
Basting R. 5
Baum ES. 37
Bayle-Weisgerbe. 31
Bell JJ. 12
Bellani FF. 26
Beneux J. 1
Bertolone SJ. 24
Borden D. 24
Braier J. 15
Brandeis WE. 28
Breatnach F. 18
Brenner J. 34
Brynes RK. 13
Burzynski NJ. 24
Caillaud JM. 31
Caillou B. 31
Cassady JR. 33
Chang CH. 12
Chard RL. 14
Chard RL. 20
Chessells JM. 18
Chutorian AM. 8
Clark BS. 14
Crigler JF. 6
Crocker AC. 33
Csanda L. 19
Cushing B. 36
Das L. 36
Deutsch M. 10
Dibar E. 15
Dohlwitz A. 21
Dorst JP. 3
Dosimov ZhB. 16
Duck SC. 39
Eppinger-Helft. 15
Epstein F. 11
Eremeev VS. 16
Evans WE. 2
Failace R. 15
Farooki ZQ. 36
Finogenova NA. 32
Garay G. 15
Garfinkel DJ. 3
Gasparini M. 26
Gaynon P. 37
Gerard-Marchant. 31
Gianni C. 26
Goldman M. 12
Goldman SM. 3
Goldstein DP. 6
Greenberg L. 37
Greenberger JS. 33
Gubler JP. 4
Gustafsson G. 21
Guyonvarch G. 1
Ha K. 9
Habeshaw JA. 25
Hammond D. 20
Hammond D. 37
Hargreaves HK. 13
Hartmann JR. 14
Hawkins HK. 13
Holcenberg JS. 2
Ihara T. 23
Ikeda T. 9
Jaffe N. 33
Johnson FL. 14
Kajtar P. 27
Keleti J. 19
Kendall BE. 38
Kennedy A. 20
Kim TH. 13
Kingsley DP. 38
Koike K. 17
Kreuger A. 21
Krivit W. 37
Kroovand RL. 36
Kun LE. 2
Lack EE. 6
Lagarde M. 15
Lazarus K. 30
Lombardi F. 26
Lui VK. 13
Magill GB. 34
Malpas JS. 7
Matsumoto S. 22
Meyer MB. 40
Micheau C. 31
Molnar A. 19
Molnar S. 27
Molofsky WJ. 8
Muriel FS. 15
Murthy AS. 6
Nakahata R. 17
Nakajima T. 22
Nakayama M. 22
Nezelof C. 1
Ninane J. 7
Norose N. 17
Oh KS. 3
Ohkawa M. 22
Okada A. 9
Oppermann HC. 28
Padovani JP. 1
Page LK. 11
Pap T. 27
Pavlovsky S. 15
Perez-Atayde AR. 6
Perlmutter AD. 36
Petroczky A. 19
Philippart AI. 36
Pilotti S. 26
Pouliquen JC. 1
Pritchard J. 7
Ragab AH. 13
Reed JO. 36
Reigel DH. 10
Revesz T. 19
Rigault P. 1
Rilke F. 26
Ring BJ. 2
Rosa B. 4
Royon M. 4
Rumiantsev AG. 16
Saito K. 17
Sather H. 20
Scaglione C. 15
Schuler D. 19
Shabanov MA. 35
Shimizu T. 11
Shimosaka S. 11
Siddiqui AR. 30
Skorobogatova O. 16
Skorobogatova O. 32
Slovis TL. 36
Smith PJ. 5
Sordillo PP. 34
Sprinkle PM. 29
Spunberg JJ. 12
Storb R. 14
Svarch E. 15
Takeda T. 22
Talbot M. 31
Tanaka J. 9
Tashjian JH. 30
Tawa A. 9
Thomas ED. 14
Tochio H. 11
Tonascia J. 40
Tono-oka T. 22
United Kingdom. 25
Varbiro M. 27
Vargha M. 19
Vawter G. 33
Vawter GF. 6
Veltri RW. 29
Waga S. 11
Weisenbach J. 27
Wellman HN. 30
Wilner HI. 36
Woodard J. 13
Yabuuchi H. 9
Yagi Y. 17

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In this issue:

- **RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-3**
- **WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 4-11**
- **OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 12-13**
- **NEUROBLASTOMAS AND CNS TUMORS..... 14-22**
- **LYMPHOMAS AND LEUKEMIAS..... 23-52**
- **OTHER RELATED CLINICAL STUDIES..... 53-56**
- **SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 57**

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. RHABDOMYOSARCOMA OF THE EAR IN CHILDHOOD: A REPORT FROM THE INTERGROUP RHABDOMYOSARCOMA STUDY (MEETING ABSTRACT).

Raney RB, Lawrence W, Maurer HM, Lindberg RD, Newton WA, Ragab AH, Tefft M, Foulkes M
No affiliation given
Otolaryngol Head Neck Surg; 89(5,section2):156 1981

Twenty-four patients with rhabdomyosarcoma of the middle (22) or external ear (2) were treated from 1972 to 1978 on the intergroup rhabdomyosarcoma study (IRS) protocol. Their

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ages at diagnosis ranged from 1 to 14 (median age 4). Fourteen were boys and ten were girls. Three patients had grossly complete removal of tumor with local microscopic residual (group II A). Sixteen patients had gross residual local tumor (group III) after biopsy (ten) or mastoidectomy (six); five had distant metastases at diagnosis (group IV). After treatment with radiotherapy (RT) and VAC (vincristine, actinomycin D, cyclophosphamide) +/- adriamycin, 10/19 patients with localized tumor (groups II and III) are free of tumor at 2.2 to 6.6 yr from diagnosis. One group IV patient is alive with contralateral cerebellar astrocytoma 4.5 yr after initial therapy. The other 13 patients are dead of sarcoma 5 to 25 mo after diagnosis. Sites of initial recurrence in nine group III patients were the meninges in six (five had had local RT and one had had whole head RT), local recurrence (two patients), and lung metastases (one). Three group IV patients died with bone metastases; the fourth died of meningeal extension after local recurrence. Outcome was influenced by presence at diagnosis of signs indicating meningeal extension: intracranial tumor, petrous bone erosion, or facial nerve palsy. Tumor mortalities were 5/5 with intracranial tumor. Three of four additional patients had petrous erosion, 2/6 had facial palsy only, and 3/9 had no initial evidence of meningeal extension. (no Refs)

2. SERTOLI-LEYDIG CELL TUMOR WITH RHABDOMYOSARCOMA. ULTRASTRUCTURE AND REVIEW OF LITERATURE (MEETING ABSTRACT).

Arguelles MT, Alonso NO, Martin JA, Martinez AM, Fuente EM, Ferenczy A
Department of Pathology, Residencia Sanitaria, Gijon, Spain
Eighth European Congress of Pathology, August 30-September 4, 1981, Helsinki, Finland. The Congress 92 pp., 1981.

A case of moderately differentiated Sertoli-Leydig cell tumor with predominance of rhabdomyosarcoma occurring in the ovary of a young female was examined by light and electron microscopy. The Sertoli cells were found morphologically and pathogenetically distinct from rhabdomyoblasts. The latter demonstrated varying degrees of differentiation and probably originated from the uncomitted stromal fibroblasts of the ovary. According to review of the published world literature, this is the first well-documented case of Sertoli-Leydig cell tumor with rhabdomyosarcoma of the ovary. (no Refs)

3. NEUROGENIC SARCOMAS OF THE NECK IN NEUROFIBROMATOSIS.

Martin G, Kleinsasser O
Dept. Otorhinolaryngology, Philipps Univ., Deutschhausstrasse 3, D-3550 Marburg (Lahn), W. Germany
Arch Otorhinolaryngol; 232(3):273-283 1981

The clinical and pathological features of sarcomas of the neck in neurofibromatosis patients are described based on two case reports and a review of 29 cases from neurofibromatosis developed a tumor on the left side of the neck at the age of 10 yr. She first presented for treatment at age 14 yr after the tumor had started to grow rapidly for 2 mo and dyspnea had appeared. Intubation was impossible and a tracheostomy was performed. A 12 x 9 x 8 cm, apparently well-encapsulated tumor weighing 810 g was exposed. Histology indicated a polymorphic malignant tumor. A few areas of benign neurofibromatosis were observed, but most areas were highly cellular with marked atypia resembling fibrosarcomas or histiocytomas of high malignancy. Structures as in pleomorphic angiosarcoma or liposarcoma, and even biphasic structures as in synovioma, were seen. Adjuvant chemotherapy and radiotherapy were administered but the child died 12 mo after therapy initiation. Another young girl with neurofibromatosis developed a walnut-sized node in the right submandibular region. Two yr later the tumor started to grow rapidly. The apparently well-encapsulated dumb-bell tumor, 15 x 5 x 4 cm in size and medial to the mandible to the base of the skull, was excised. Histologically this tumor showed a few isolated areas of benign neurofibroma but predominantly resembled a largely cellular fibrosarcoma of high malignancy. Diagnosis and treatment of neurogenic tumors in neurofibromatosis patients are discussed. (62 Refs)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

4. THE ROLE OF ECHOGRAPHY IN WILMS' TUMOR: A REPORT OF 15 CASES (MEETING ABSTRACT).

Candiani F, Rubaltelli L, Giuseppetti G, Busilacchi P, Mirk P
No affiliation given
Excerpta Med Int Congr Ser; 547:95 1981

Although it is not as frequent as neuroblastoma, Wilms' tumor is the most frequent of all other malignant tumors in infants and children, including lymphosarcomas and tumors of the CNS. In 90% of cases under the age of 5, it presents with a peak incidence at two yr of age. The main problems involved in dealing with this tumor are: (1) recognition of and extension of the tumor; (2) differential diagnosis (this tumor can be mistaken for others which occur in children, (eg, neuroblastoma, hamartoma, etc); (3) preoperative (after radiochemotherapy) and postoperative examination. The authors present 15 cases of Wilms' tumors studied echographically. Their most frequent echographic patterns will be discussed with a view of establishing characteristic and exemplary signs helpful in reaching a differential diagnosis. The reasons for these signs will be suggested on the basis of anatomopathologic substrates; both the diagnostic pitfalls and diagnostic possibilities will be pointed out and the role and importance of echography both in the diagnosis and follow-up of this disease will be evaluated. (no Refs)

5. FOLLOW-UP OF WILMS TUMOR: COMPARISON OF CT WITH OTHER IMAGING PROCEDURES.

Brasch RC, Randel SB, Gould RG
Dept. Radiology, S-358, Univ. California Sch. Medicine, San Francisco, CA, 94143
AJR; 137(5):1005-1009 1981

In a retrospective review, computed tomography (CT) was compared to a 'routine' combination of other diagnostic imaging procedures used for follow-up evaluations of 13 children bein g treated for Wilms tumor. The examined variables were diagnostic accuracy, expense, and duration of examination. Results from 13 patients indicated that CT most accurately answers diagnostic queries pertinent to follow-up evaluation of Wilms tumor: the presence and extent of bilateral renal tumors, local recurrence, contralateral renal hypertrophy, and metastasis to liver or lungs. For diagnosing pulmonary metastases, CT was superior to conventional chest radiography both in sensitivity (4/4 vs 2/4) and specificity (9/9 vs 6/9). In depiction of liver metastases, CT (3/3) was superior to liver scintigraphy (2/3). The extent of bilateral Wilms tumors was better defined by CT than by urography. In no instances were the alternative diagnostic imaging studies found to be more accurate than CT for the detection of recurrent tumor. Av cost for a CT exami-

nation (344) is considerably less than the cost for a routine combination of the other imaging studies (594). Examination time and diagnostic radiation doses are also reduced using CT. Pending larger comparison studies, CT is recommended as the primary diagnostic method for follow-up evaluation of patients with Wilms tumor. (Author abstract) (14 Refs)

6. EXPERIENCE IN CHILD SCANNING FOR COMBINED RADIATION/SURGICAL THERAPY (MEETING ABSTRACT).

Breyer B, Cepulic E, Cepulic M
No affiliation given
Excerpta Med Int Congr Ser; 547:97 1981

Planning of a combined radiation and surgical treatment presents partly different requirements to the equivalent in adults. Reduction of irradiated fields is of greater importance than in adults and repeated scanning during radiation therapy enables the radiotherapist to follow the tumor reduction. We therefore recommend at least two scanning sessions during the irradiation course. In Wilms' tumor scanning (10 of the cases treated were scanned by ultrasound) we recommend use of the water bag technique for reduction of dissemination hazard induced by probe pressure. Special attention is given to the psychological preparation of children over 3 yr of age and sedation of babies before scanning. (no Refs)

7. WILMS' TUMOR.

Belasco J, D'Angio GJ
Children's Cancer Res. Center, Children's Hosp., Philadelphia, PA
CA; 31(5):258-270 1981

The results of two National Wilm's Tumor (WT) Studies to date are reviewed and the design and objectives of a third NWTS are presented. NWTS-1 showed that patients treated by total excision of early-stage tumors (Group 1) had higher 2-yr disease-free survival rates when given postoperative radiation therapy, if the patients were over the age of 2. Patients under 2 yr old showed no change in survival rate with radiation therapy. Patients with localized tumors not limited to the kidney (Groups 2 and 3) showed better survival rates with combined chemotherapy using vincristine and actinomycin-D than with only one of the drugs. Preoperative use of vincristine in patients with metastatic disease (Group 4) made surgical procedures easier, but did not affect overall survival rates. The results of NWTS-2 indicated that Group 1 patients could be treated with double-agent chemotherapy for only 6 rather than 15 mo, regardless of age. The addition of adriamycin to vincristine and actinomycin resulted in greater relapse-free survival for children with Group II, III, and IV disease. Cytohistopathologic examination of specimens identified two classes of disease that aid in prognosis. Late effects of treatment and the susceptibility of WT patients to second cancers are discussed. The current 2-yr survival rate for WT is about 90%. NWTS-3 is aimed at determining the etiology of WT, assessing the risk-benefit of various therapies, and refining treatment. (42 Refs)

8. CONGENITAL MESOBLASTIC NEPHROMA.

Gerber A, Gold JH, Bustamante S, Lorch V, Mirza M
(c/o Mirza), Wesley Medical Center, 650 N. Hillside, Wichita, KS, 67214
J Pediatr Surg; 16(5):758-759 1981

Neonatal renal neoplasms are rare; most are congenital mesoblastic nephroma. In the past this neoplasm has been confused with Wilms' tumor, which in part may account for some of the more favorable prognosis ascribed to Wilms' tumor in children less than 1 yr of age. Congenital mesoblastic nephroma is usually a benign tumor. The recommended treatment is surgical excision. This is a report of two cases of congenital mesoblastic nephroma in infants who were treated successfully by nephrectomy. (Author abstract) (6 Refs)

9. CONGENITAL MESOBLASTIC NEPHROMA: RELATIONSHIP TO OTHER RENAL TUMORS OF INFANCY.

Snyder HM, Lack EE, Chetty-Baktavizian A, Bauer SB, Colodny AH, Retik AB
Div. Urology, Children's Hosp. Medical Center, 300 Longwood Ave., Boston, MA, 02115
J Urol; 126(4):513-516 1981

Although nephroblastomas (Wilms tumor) do occur in the newborn most of the solid renal tumors in this age group constitute a distinctly different pathologic entity, congenital mesoblastic nephroma. While a more cellular histologic variant of congenital mesoblastic nephroma has been recognized recently, which occasionally may follow a malignant course, the tumor with conventional histology has never been reported to metastasize and follows a benign course when treated by adequate local excision alone. We report our 50-yr experience with 11 cases of this tumor (9 cases with conventional histology and 2 with cellular variant histology). Typically, the tumor presented in the newborn as a large asymptomatic mass. Local invasion was never seen and the tumors were resected without difficulty. Grossly, the tumors rarely exhibited hemorrhage or necrosis. Microscopically, the conventional histologic congenital mesoblastic nephroma was composed of sheets of spindle-shaped cells. The cellular variant of congenital mesoblastic n ephroma exhibited increased cellularity and a higher mitotic index. The relationship of congenital mesoblastic nephromas to other neonatal renal tumors is discussed and a unifying schema of neoplasia in infantile renal tumors is proposed. (Author abstract) (18 Refs)

10. RHABDOMYOGENESIS IN RENAL NEOPLASIA OF CHILDHOOD.

Gonzalez-Crussi F, Hsueh W, Ugarte N
Dept. Pathology, Children's Memorial Hosp., 2300 Children's Plaza, Chicago, IL, 60614
Am J Surg Pathol; 5(6):525-532 1981

Primary tumors of the kidney in 220 children were reviewed in retrospect. Substantial amounts (over 10% of examined tumor area) of striated muscle cells were found in 17 cases. 'Massive' rhabdomyogenesis (Mv: 30% or more) was found in 11 cases; moderate rhabdomyogenesis (Md: 10-30%) was found in 6 cases. Patients with Mv were all under 4 yr. Six of these had bilateral tumors. Two had nephroblastoma-related congenital anomalies: one hemihypertrophy and one aniridia and mental retardation. Of patients with Md none had bilateral tumors. One of these had a variant tumor, cystic nephroma. One case with Mv had a tumor uniformly composed of primitive mesenchymal cells not classified as Wilm's tumor. All 16 other cases had Wilm's tumor. Prognosis depended on clinical stage, age, and histology, with age being the least important factor. The non-Wilm's case indicated the rare occurrence of rhabdomyosarcoma in children. Five tumors (two with Mv and three with Md) were polypoid with intrapelvic or intracaliceal projections. Results of study indicate a correlation between rhabdomyogenesis and clinical behavior. (27 Refs)

11. MALIGNANT GERM CELL TUMORS IN 57 CHILDREN AND ADOLESCENTS.

Brodeur GM, Howarth CB, Pratt CB, Caces J, Hustu HO
Dept. Pediatrics, St. Louis Children's Hosp., 500 South Kingshighway Blvd., St. Louis, MO, 63110
Cancer; 48(8):1890-1898 1981

Fifty-seven patients with malignant germ cell tumors (GCTs) treated at our center between 1962 and 1979 were evaluated to determine (1) the prognostic value of disease stage, tumor histology, primary site, and patient age; (2) results of therapy; and (3) patterns of metastasis. The 35 girls and 22 boys were from 1 wk to 18 yr old (median 5 yr). Primary sites were ovarian (20), testicular (10), sacrococcygeal (12), retroperitoneal (7), mediastinal (5), and other (3). Cox regression analysis indicated that stage was the most important prognostic variable. Extragonadal tumors were usually advanced at diagnosis, but tumor site did not have prognostic value independent of disease stage. Neither patient age nor tumor histology significantly influenced outcome. Drugs active against malignant GCTs included vincristine, cyclophosphamide, and dactinomycin in combination and vinblastine, bleomycin, and cis-platinum. Radiation alone cured nondisseminated germinomas. The most common sites of metastasis were lungs, liver, CNS, and bone; other sites were infrequently involved. We conclude that stage was the most important prognostic variable, extragonadal tumors were usually advanced at diagnosis, and similarities in the histogenesis, metastatic pattern, and response to therapy, regardless of primary site, justify the consideration of childhood malignant GCTs as one group. (Author abstract) (49 Refs)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

12. GIANT-CELL REACTION IN THE SMALL TUBULAR BONES. A LIGHT- AND ELECTRON-MICROSCOPIC STUDY.

Helpap B, Totovic V, Bechtelsheimer H
Inst. Pathology, Univ. Bonn, P.O. Box 2120, D-5300 Bonn 1, W. Germany
J Cancer Res Clin Oncol; 101(2):219-226 1981

The case of a 13-yr-old boy with a swelling in the region of the second metatarsal bone is presented and discussed. X-ray showed a cystic radiolucent lesion of the shaft region with extensive thinning of cortical bone in some places. Operation was proposed on the basis of diagnosis of enchondroma. Successful healing occurred, but 12 wk later retrospective observation established increasing cystic change. The bone was resected and bone continuity was achieved by insertion of a segment of fibula. Light and electron-microscopic examination of curettage material from the lesion showed a very cellular tissue with a closely woven net of osteoid trabeculae with numerous osteoblasts and a whorl-shaped spindle cell stroma with fibroblasts, fibrocytes, and irregularly scattered multinucleated giant cells of the osteoclast type. The final diagnosis of giant-cell reaction of small tubular bone with unusual marked osteoid formation was made only after exclusion of osteosarcoma, enchondroma, non-ossifying fibroma, osteoblastoma, and bone cysts. Block resection appears more appropriate than curettage in view of the possibility of recurrences. (11 Refs)

13. EXTRASKELETAL EWING'S SARCOMA OCCURRING AS A MASS IN THE NECK (MEETING ABSTRACT).

Gustafson RO, Maragos NE, Reiman HM
No affiliation given
Otolaryngol Head Neck Surg; 89(5,section2):150 1981

We report the case of an 18-yr-old man who had a six-mo history of a painless, progressively enlarging mass in the right side of his neck. Physical examination showed a firm, nontender, diffuse 8x5-cm mass in the right posterior cervical triangle. Upon surgical exploration of the right posterior cervical triangle, several shoddy lymph nodes, and a mass of enlarged muscle were excised and submitted, and histopathologic examination showed inflammatory lymph nodes and normal skeletal muscle. The patient made an uneventful recovery. At the six-wk postoperative visit, however, the patient complained of a severe, pressure-like discomfort radiating from the right side of his neck into his right arm. The previously noted mass had enlarged, and ultrasound study and computed tomography of the neck showed that t he mass was primarily echogenic and heterogeneous in density. Reexploration of the right posterior cervical triangle revealed a friable 14x10x7-cm mass in the paravertebral region with no osseous involvement. A frozen section of the specimen was provisionally interpreted as non-Hodgkin's lymphoma, but light and electron microscopic examination of the fixed specimen disclosed extraskeletal Ewing's sarcoma. After completing seven mo of protocol, including radiation therapy (5,000 rads) and cycles of systemic vincristine, cyclophosphamide, doxorubicin, and dactinomycin, the patient was free of detectable disease, but withdrew from treatment voluntarily and has been lost to follow-up. (no Refs)

NEUROBLASTOMAS AND CNS TUMORS

14. PLASMA VASOACTIVE INTESTINAL POLYPEPTIDE (VIP) AND OTHER PEPTIDES IN CHILDREN WITH NEUROGENIC TUMOURS (MEETING ABSTRACT).

Long RG, Tiedemann K, Pritchard J, Bloom SR
Department of Medicine, Hammersmith Hospital, London, England
Gastroenterology; 80(5,part2):1217 1981

Raised plasma VIP concentrations are recognized in patients with ganglioneuroblastomas and diarrhea. Recently we studied a 21 mo old child with a ganglioneuroblastoma with profuse diarrhea and a raised plasma VIP of 5400pmol/l which fell to 200pmol/l with iv somatostatin. This finding led us to study prospectively fasting plasma VIP, pancreatic polypeptide, gastrin and glucagon concentrations in groups of age and sex matched children with newly diagnosed neurogenic tumors without significant diarrhea, treated neurogenic tumors, non-neurogenic tumors and no relevant abnormality. Plasma VIP concentrations were raised significantly in the children with untreated neurogenic tumors compared to the children with non-neurogenic tumors and the normal controls. The mean VIP levels in the treated children were 11.2 +/-1.2pmol/l. Half the children with untreated neurogenic tumors had plasma VIP concentrations above 20pmol/l whereas none did in the other groups. No significant differences between groups were seen in plasma pancreatic polypeptide, gastrin and glucagon. Thus these neurogenic tumors did not secrete the other pancreatic peptides measured. It is concluded that plasma VIP may be raised in children with neurogenic tumors and no diarrhea. VIP measurement could be of use in the diagnosis and follow-up of these patients. (no Refs)

15. MONOCLONAL ANTIBODIES TO HUMAN NEUROBLASTOMA-THEIR POTENTIAL USE IN AUTOLOGOUS MARROW TRANSPLANTATION (MEETING ABSTRACT).

Kemshead JT, Pritchard J, Malpas JS, Greaves M
Membrane Immunology Laboratory Imperial Cancer Research Fund, London, WC2, England
Br J Cancer; 43(5):728 1981

In children with advanced neuroblastoma whose marrows appear by microscopic assessment to be free of tumor cells, we have recently used high-dose (melphalan) chemotherapy with autologous marrow rescue, to see whether remission of disease can be prolonged. Of 12 patients so treated, 3 remain alive and well but 9 have relapsed-mostly at metastatic sites. This pattern of relapse might reflect either failure to control metastatic disease even by high-dose melphalan or re-seeding by residual undetected tumor cells in the reinfused marrow. To investigate this latter possibility, monoclonal antibodies to human neuroblastoma have been produced. A panel of antibodies has been tested against human neuroblastoma cell lines and differential expression of antigens both quantitative and qualitative has been found between cultures. For example, the monoclonal antibody M1/N1 recognizes an antigen expressed in about 4x the quantity on CHP100 cells when compared to CHP212 cells. Similar heterogeneity in the binding of monoclonal antibodies is found on analysis of bone marrow aspirates from children with metastatic neuroblastoma. (1 Ref)

16. HEMORRHAGIC BRAIN TUMORS IN PEDIATRIC PATIENTS.

Laurent JP, Bruce DA, Schut L
Dept. Neurosurgery, Baylor Univ., Texas Children's Hosp., Room 0-202, Houston, TX, 77030
Childs Brain; 8(4):263-270 1981

One hundred and thirteen new pediatric patients with tissue-verified intracranial tumors were reviewed retrospectively for evidence of subarachnoid hemorrhage. Subarachnoid hemorrhage as an initial event was caused by tumor in 15.8% of the cases between 1976 and 1979. Of the 113 patients with tumors, 12 had subarachnoid hemorrhage, 41% of which were from primitive neuroectodermal-medulloblastoma tumors. Hemorrhage was present in 50% of neuroblastomas and only 7% of astrocytomas. While the particular bleeding pattern observed on computerized axial tomography was not distinguishable from other etiologies, enhancement with contrast material revealed the tumor in many cases. Five children had intraventricular blood, and all had layering of blood on the falx. There were five medulloblastoma-primitive neuroectodermal tumors, three astrocytomas, two neuroblastomas, and two metastatic tumors. The high incidence of intracranial tumoral hemorrhage in this series suggests that this may be a more common presentation than previously reported. (23 Refs)

17. CLINICAL EVALUATION OF SEQUENTIALLY SCHEDULED CISPLATIN AND VM26 IN NEUROBLASTOMA: RESPONSE AND TOXICITY.

Hayes FA, Green AA, Casper J, Cornet J, Evans WE
St. Jude Children's Res. Hosp., Memphis, TN, 38101
Cancer; 48(8):1715-1718 1981

Cis-dichlorodiammineplatinum (CDDP) and VM26, both of which have been proven efficient in treating neuroblastoma, were combined in a sequential schedule and administered to 22 children with disseminated neuroblastomas resistant to treatment with cyclophosphamide and doxorubicin (adriamycin). During this same study, 14 children were prospectively evaluated for the effect of the CCDP on ma gnesium metabolism and the effect of induced hypomagnesemia on parathyroid function. Complete or partial tumor responses were achieved in 6 and 9 cases, respectively and were of prolonged duration (longer than 6 mo) in 8 of the 15 responding. It was also shown that CDDP-induced hypomagnesemia is the result of excessive renal loss and is severe enough to interfere with the normal parathormone response to hypocalcemia. (Author abstract) (16 Refs)

18. THE CSF-PROTEIN PATTERN IN ACUTE CEREBELLAR ATAXIA OF CHILDHOOD AND INTRACRANIAL MIDLINE TUMOURS.

Siemes H, Siegert M, Jaroffke B, Hanefeld F
Arbeitsgruppe 'Klinische und Experimentelle Plasmaproteinforschung', Kinderklinik der Freien Universitat, Heubnerweg 6, D-1000 Berlin, W. Germany
Eur J Pediatr; 137(1):49-57 1981

The protein pattern in childhood acute cerebellar ataxia (ACA) was analyzed to elucidate its pathogenesis. The protein profile in intracranial midline tumors (IMT) was characterized. The patterns of both diseases were compared to obtain information useful for their differential diagnosis. Lumbar cerebrospinal fluid (CSF) from 251 patients (3 mo to 15 yr old; 25 ACA, 39 IMT, 61 aseptic meningitis, 40 bacterial meningitis, and 86 with no CNS disease) was examined. Of the 25 ACA children, 10 showed slightly elevated CSF cell counts. Significant changes in the eight CSF-protein fractions were observed in all ACA children. The CSF cell count was elevated in 10/14 children with medulloblastomas, 2/9 with pontine gliomas, and in none of the remaining tumor patients. Tumor cells were identified in six children with medulloblastomas and in none of the other children. Total protein was frequently increased in association with medulloblastomas (12/14 cases) and rarely in the other tumor patients (4/25). Significant changes of the protein pattern in children with brain tumor were found in nearly all the fractions, giving a pattern similar to that in acute nonbacterial meningitis. The children with medulloblastomas showed a marked increase of gamma3, which comprises most of the IgG. Oligoclonal gamma-globulin amounts to 1.9-12.4% of total protein. Differentiating ACA and IMT by CSF-protein analysis is possible. The mechanisms of CSF changes in children with ACA and IMT are discussed. (23 Refs)

19. VERTIGO IN CHILDREN AND BRAIN TUMORS.

Nomura K
Dept. Otorhinolaryngology, Tokai Univ. Sch. Medicine, Isehara 259-11, Japan
Nippon Jibiinkoka Gakkai Kaiho; 84(5):483-489 1981

Of 1,502 patients examined with electronystagmography (ENG) from 1971-1980, 36 were children (23 boys, 13 girls; 6-15 yr old) with either vertigo (16 children) or dizziness and disequilibrium (20) as primary complaints. Peripheral vestibular dysfunction was observed in 11/36, central vestibular disturbance was observed in 18, and diagnosis was difficult in 7. The most common serious diseas e, infratentorial tumor (2 medulloblastoma, 2 ependymoma, 1 astrocytoma, 1 pontine glioma), was observed in six 7-11-yr-old children. Five of the patients with infratentorial tumors had marked dizziness, and one patient only exhibited vertigo. If symptoms of dizziness are observed in a child, detailed examination of the child using such simple vestibular function tests as detection of gaze nystagmus and righting reflex test can be used to discover such tumors. (11 Refs) (In JPN)

20. SUBDURAL EFFUSION FOLLOWING RADICAL SURGERY FOR CHIASMAL REGION TUMORS IN CHILDREN. REPORT OF 4 CASES.

Mizoi K, Takaku A, Suzuki J
Div. Neurosurgery, Inst. Brain Diseases, Tohoku Univ. Sch. Medicine, 5-13-1 Nagamachi, Sendai 982, Japan
Childs Brain; 8(4):307-315 1981

Cases of four children with subdural effusion occurring after radical surgery for chiasmal region tumors are reported. The patients were a 14-yr-old boy, a 6-yr-old girl, a 4-yr-old girl, and a 10-mo-old girl. The first three had craniopharyngiomas, the last, an optic glioma. At admission, all were alert but the third child. All had visual disturbances and developmental disturbances, one had a choked disc, three optic atrophy, and one hydrocephalus. The tumors were totally removed by bifrontal craniotomies. Symptoms of the subdural effusion were headache and nausea, visual disturbance, consciousness disturbance, and convulsions, in the four patients, respectively. All but the second patient underwent subduroperitoneal shunting. At follow-up, the first three patients had excellent results, the fourth died after discharge. In two patients, the pathogenetic mechanisms of this disorder are explained by a change from internal to external hydrocephalus or brain atrophy. The subdural effusion was either of 'serious type' which presented with severe symptoms or 'mild type' which was virtually asymptomatic. (10 Refs)

21. CRANIOPHARYNGIOMA IN TWO SIBLINGS.

Vargas JR, Pino JA, Murad TM
4949 Mountain View Parkway, Birmingham, AL, 35244
JAMA; 246(16):1807-1808 1981

The cases of two siblings (a 16-yr-old boy and his sister who was 2-yr younger) who each had gradual symptomatic development of diabetes insipidus and panhypopituitarism and were later found to have craniopharyngiomas are reported. The boy, prepubertal at the time of examination (age 16), had bitemporal hemianopsia, bilateral nasal optic disc atrophy, and a generalized enlargement of the sella turcica. The pituitary was removed during transfrontal exploratory surgery and was reported as craniopharyngioma. The patient's postoperative course was uneventful; he received cortisone, levothyroxine, sodium, and vasopression tannate in oil. The patient grew 7 cm during the next 19 mo, but he did not show sexual maturation. The girl was first treated at age 16 for neurogenic diabetes insipidus. One yr later, the patient was examined for headaches of 6-mo duration and amenorrhea of 1-yr duration; some cardiac abnormalities were noted, and a test with levodopa did not increase growth hormone concentrations. Seventeen mo later, abnormal polytomograms were obtained, and the patient underwent transsphenoidal removal of a craniopharyngioma. Postoperative recovery was uneventful, and the patient was given hormone replacement therapy. No genetic studies were performed; it was thought that the occurrence of craniopharyngiomas in the siblings may have been coincidental. (10 Refs)

22. BRAIN TUMORS IN TUBEROUS SCLEROSIS. REPORT OF 4 CASES.

Tsuchida T, Kamata K, Kawamata M, Okada K, Tanaka R, Oyake Y
Dept. Neurosurgery, Brain Res. Inst., Niigata Univ., 1-757 Asahimi-chi-dori, Niigata 951, Japan
Childs Brain; 8(4):271-283 1981

Cases of four children with brain tumors associated with tuberous sclerosis (TS) treated between 1940 and 1979 are presented. The patients included a 14-yr-old girl, a 19-yr-old boy, a 9-yr-old boy, and a 3-yr-old boy. Two patients were mentally retarded, all had adenoma sebasceum, and three had so-called 'shagreen' skin. Two patients had retinal lesions and three had papilledema. One patient had mild myocardial injury. Computed tomography in three patients demonstrated well-circumscribed, monotonous high-density tumors which were markedly enhanced after injection of contrast medium. Two tumors were located by pneumoventriculography. All tumors were in the region of Monro's foramen and were associated with ventricular dilatation. Three patients underwent craniotomy with resection of the tumor: two were totally resected and were living normal lives, one died of recurrence in the sixth yr after operation. In two patients, ventriculoperitoneostomy was done initially. Each of the three operated cases had different histologies: plump cell astrocytoma, hemangioma, and astroblastoma. (18 Refs)

LYMPHOMAS AND LEUKEMIAS

23. EVALUATION OF RADIATION THERAPY FACTORS IN PROPHYLACTIC CENTRAL NERVOUS SYSTEM IRRADIATION FOR CHILDHOOD LEUKEMIA: A REPORT FROM THE CHILDREN'S CANCER STUDY GROUP.

D'Angio GJ, Littman P, Nesbit M, Sather H, Hittle R, Ortega J, Donaldson M, Hammond, D
Children's Cancer Study Group Operations Offace, 1721 Griffin Ave., Los Angeles, CA, 90031
Int J Radiat Oncol Biol Phys; 7(8):1031-1038 1981

The toxicity, survival experience, CNS and bone marrow relapse rates for 656 leukemia children are reported in relation to such radiation therapy factors as the fields employed, doses administered, and the different technical approaches used. Study design called for remission induction using vincristine, prednisone, and L-asparaginase. Patient achieving M1 bone marrow status 28-42 days after initiation of treatment were eligible for randomization among four treatment groups, as follows: (1) cranio-s pinal radiation therapy (RT) to 2,400 rad plus 1,200 rad to thymus, abdomen, testes;(2) cranio-spinal RT (2,400 rad); (3) cranial RT (2,400 rad) plus intrathecal methotrexate (IT/MTX: 12 mg/square meter, twice weekly for 3 wk); (4) IT/MTX alone as in regimen 3; (5) craniospinal radiation at 1,800 rad; (6) cranial RT at 1,800 rad plus IT/MTX. No statistically significant differences could be detected in the CNS, bone marrow relapse, relapse-free survival or survival rates among the five irradiated groups. There were no consistent differences in these results when equipment factors, daily dose, total dose, duration of treatment, or field arrangements were analyzed. Group 1, 2, and 5 patients, who had larger fields irradiated, encountered more complications. (15 Refs)

24. USE OF MONOCLONAL ANTIBODIES, MORPHOLOGY, AND CYTOCHEMISTRY TO PROBE THE CELLULAR HETEROGENEITY OF ACUTE LEUKEMIA AND LYMPHOMA.

LeBien TW, McKenna RW, Abramson CS, Gajl-Peczalska KJ, Nesbit ME, Coccia PF, Bloomfield CD, Brunning RD, Kersey JH
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Cancer Res; 41(11,part2):4776-4780 1981

A combined immunological, morphological, and cytochemical approach to the study of malignant cells in patients with acute leukemia and lymphoma is presented. Newly produced

monoclonal antibodies that bind to antigens of human mononuclear cells (TA-1), or B-lymphocytes (BA-1) were used to study malignant cells from patients with acute lymphoblastic leukemia (ALL), acute myelocytic leukemia, acute myelomonocytic leukemia, and chronic lymphocytic leukemia. Results in lymphoid leukemia-lymphoma patients were compared with other immunological markers and indicate that the major groups of ALL and childhood non-Hodgkin's lymphoma are T-ALL, pre T-ALL, pre-B-ALL, and non-T, non-B-ALL. In addition, each major group had multiple phenotypes when analyzed with seven immunological markers including the RBC rosette receptor, surface Ig, cytoplasmic Ig M, the early lymphocyte-acute lymphoblastic leukemia antigen, monoclonal antibody TA-1, monoclonal antibody BA-1, and a monoclonal antibody against HLA-Dr. While immunological heterogeneity was demonstrable within each group, distinct biological behavior was observed, with T-ALL and B-ALL generally presenting as 'lymphomas' and the others presenting as 'leukemias.' Morphological analysis using the French-American-British classification provided independent information in the definition of groups with differing clinical behavior. Cytochemical analyses demonstrated focal paranuclear staining of leukemia cells with acid phosphatase in 73% of T-ALLs and 6% of non-T, non-B-ALLs. (Author abstract) (32 Refs)

25. CYTOMORPHOLOGY AND PROGNOSIS OF ACUTE LYMPHOBLASTIC LEUKEMIA.

Vecchi V, Rosito P, Vivarelli F, Mancini AF, Pession A
Reparto di Oncoematologia, Clinica Pediatrica dell'Universita - Ospedale 'G. Gozzadini', via Massarenti, 11, 40100 Bologna, Italy
Haematologica (Pavia); 66(3):289-302 1981

A retrospective evaluation was made of the usefulness of the acute lymphoblastic leukemia (ALL) classification proposed by the French-American-British (FAB) cooperative group. FAB classification was adopted by the Children's Cancer Study Group, which added two transitional groups: L1/L2 and L2/L1, between L1 and L2, defined as percentages of cells with morphology L1 and L2. Using this enlarged classification, survival time and importance of morphology as a prognostic index were evaluated. Bone marrow blood smears of 79 patients (1-13 yr old; 43 male and 36 female) with ALL, receiving the same radio- and chemotherapy, were evaluated by four examiners separately and then together. At least 200 cells were counted in every case. Approx 70% of ALL patients had favorable morphology (L1, L1/L2), and 30% had morphology with unfavorable prognosis (L2, L2/L1). First complete remission curves of the two groups are significantly different. The prognostic value of leukemic lymphoblast morphology is especially evident in low risk patients with WBC less than 10,000/ml, 3-6 yr old. These three parameters can be used together to divide patients into different risk groups and to determine suitable therapy. (46 Refs) (In ITA)

26. INTENSIVE THERAPY AND PROGNOSTIC FACTORS IN ACUTE LYMPHOBLASTIC LEUKEMIA OF CHILDHOOD: CCG 141.

Miller DR, Leiken S, Albo V, Sather H, Karon M, Hammond D
Childrens Cancer Study Group, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Haematol Blood Transfus; 26:77-86 1981

Results of treatment regimens for childhood acute lymphoblastic leukemia (ALL) are presented; prognostic groups are redefined based on prospective evaluation of front-end factors. Patients were assigned to treatment (low: LR1 or high: HR1 or R2) based on WBC counts. Drugs administered and dosage schedules are presented. Of the 882 eligible patients, 576 were entered on LR1, 151 on HR1, and 155 on R2; complete remission rates were 95%, 93%, and 91%, respectively. Significantly unfavorable factors of response to induction therapy were age greater than 10 yr, initial WBC greater than 20 x 10(9)/liter, presence of CNS disease at diagnosis, L2 or L3 morphology, decreased IgG, Down's syndrome, and less than 30% PAS positive lymphoblasts. Marrow status on day 14 of induction was also a significant predictor: 454/455 of children with M1 marrow on day 14 were M1 at completion of induction and 57/70 with M3 marrow on day 14 were M1 on day 28 or 42 of induction. Duration of complete continuous remission (CCR) and hematologic remission were longer and relapse rate lower in children entered on LR1 than in patients entered on HR1 an d R2. At 48 mo, 65.2%, 48.1%, and 39.1% of patients on LR1, HR1, and R2, respectively, remained in CCR. Of the patients completing induction, 57.6% remained in CCR. No significant differences in relative relapse rates were observed in the regimens. The incidence of isolated CNS relapse in LR1, HR1, and R2 was 4.7%, 8.5%, and 12.8%, respectively. During maintenance therapy, testicular relapse occurred in 44 of 459 boys at risk. The testicular relapse was significantly higher in HR1 than in R2 or LR1. Isolated bone marrow, CNS, and testicular relapses occurred in 204, 57, and 34 patients, respectively. Prognostic factors for disease-free survival and survival are presented. (19 Refs)

27. A STUDY OF THE CEREBRAL CIRCULATION OF CHILDREN WITH ACUTE LEUKEMIA (MEETING ABSTRACT).

Futaki Y, Shimizu H, Abe J, Onoe S, Tagawa T, Yabuuchi H, Sumi K
Dept. Pediatrics, Medical Sch., Osaka Univ., Kita-ku, Osaka 530, Japan
Proceedings of the 23rd Annual Meeting of the Japanese Society of Child Neurology held in Sendai, Japan, 4-6 June, 1981. The Japanese Society of Child Neurology, Tokyo 160, Japan, 115 pp., 1981.

The damage to the CNS of 20 children with acute leukemia caused by direct invasion of the leukemia, by the toxicity of chemotherapeutic agents and by radiotherapy was examined from the aspect of cerebral circulation by measuring the blood flow rate in the carotid artery by the ultrasonic Dopler's method. The av age of the patients at the time of the measurement was 8.5 yr, and the av time from the onset of symptoms to the examination was 3.4 yr. A transducer was inserted into the internal carotid artery at an angle of 60 to obtain the av max flow rate (A/L) and the flow rate at the end stage of cardiac distension (d). The results were compared with those of 17 healthy children (7-8 yr old). The A/L and d of the children with leukemia were not significantly different from those of the healthy children, but four of the children with leukemia had decreased cerebral blood flow. Complications of nervous symptoms were seen in all four of these patients, but in none of the patients who had normal blood flow. On the other hand, computerized tomography findings were abnormal for all of the patients with decreased blood flow, and for 2 of the 11 children with normal blood flow. (no Refs) (In JPN)

28. THE TREATMENT OF PRIMARY CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA WITH INTERMEDIATE DOSE METHOTREXATE.

Sinks LF, Wang JJ, Freeman AI
No affiliation given
Haematol Blood Transfus; 26:99-107 1981

Fifty-four patients with newly diagnosed acute lymphocytic leukemia received treatment including systemic intermediate dose methotrexate (IDM: 500 mg/square meter) given over 24 hr in an attempt to eradicate leukemia cells in the CNS. Of the 54 patients, 52 achieved complete remission. D uring a follow-up of 36-72 mo, 20 patients experienced relapse: 10 CNS, 9 systemic, and 1 testicular. Eleven of the 17 increased-risk patients and 9/35 standard-risk patients relapsed. In the nine standard-risk patients who relapsed, five recurrences were CNS, three systemic, and one testicular. Of the 11 increased-risk patients who relapsed, 5 were in the CNS and 6 were systemic. Of the 52 children who entered complete remission, 8 died. IDM toxicity included vomiting (20/52), oral ulceration (20/52), hematologic toxicity (12/52), hepatic toxicity (11/52), and transient maculopapular rashes (3/52). The overall regimen was well-tolerated. Results indicated that the use of a systemic as opposed to local [radiotherapy (RT) to the cranium] form of therapy confers greater protection on standard-risk children with ALL. The long-range complication of cranial RT can also be avoided. In high-risk patients, cranial RT and intrathecal methotrexate appears superior to IDM. (32 Refs)

29. T-CELL ACUTE LYMPHOBLASTIC LEUKEMIA IN CHILDREN.

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Haematol Blood Transfus; 26:121-123 1981

A new treatment program including chemotherapeutic agents more selective for T-cells (cyclophosphamide, cytosine arabinoside, adriamycin) along with vincristine and prednisone, intensification of the therapy to extramedullary sites, and thymectomy was used to treat 17 patients with immunologically proven T-cell acute lymphoblastic leukemia. Two patients died of sepsis and pneumonitis during induction. Of the 15 patients who entered complete remission, 3 relapsed at 5, 12, and 12 mo. Relapses were in the bone marrow (2) and CNS (1), respectively. Three remission deaths occurred at 3, 8, and 12 mo, two from sepsis and one from adriamycin-induced cardiomyopathy. Eleven patients remained in continuous remission from 7+ to 28+ mo. Median follow-up was 15 mo. Two patients elected to discontinue therapy and remained disease-free for 28 mo. (9 Refs)

30. THE DEVELOPMENT OF CEREBRAL CT CHANGES DURING TREATMENT OF ACUTE LYMPHOCYTIC LEUKEMIA IN CHILDHOOD.

Pedersen H, Clausen N
Univ. Dept. Neuroradiology, Rigshospitalet, DK-2100 Copenhagen, Denmark
Neuroradiology; 22(2):79-84 1981

Twenty-three children with acute lymphocytic leukemia (ALL) were examined with cranial CT at least twice with a minimal interval of 10 mo. The first CT was performed at the time of diagnosis in 11 children and during therapy in 12; all but two were normal on the first CT examination. These two had slight enlargement of the ventricular system and subarachnoid space at the time of diagnosis. These findings were unchanged on the second CT examinations. Seven patients, all in remission from leukemia of the central nervous system manifested abnormal findings on later CTs. Low density areas in the periventricu lar white matter were seen in the brains of three, with increasing subcortical calcification in one of these cases. Five children had slight enlargement of the ventricular system and subarachnoid space, especially of the basal and Sylvian cisterns. Later CT examinations in five, plus brain autopsy in two cases, revealed unchanged or progressive conditions. The CT findings have been related to the treatment and some characteristics of the disease. The frequency of CT abnormalities was higher in patients who had received therapeutic irradiation and intraventricular methotrexate treatment. The possible reasons for the CT abnormalities are discussed. (Author abstract) (18 Refs)

31. FATAL EPSTEIN-BARR VIRUS INFECTION IN A CHILD WITH ACUTE LYMPHOBLASTIC LEUKEMIA IN REMISSION.

Look AT, Naegele RF, Callihan T, Herrod HG, Henle W
Div. Hematology Oncology, St. Jude Children's Res. Hosp., P.O. Box 318, Memphis, TN, 38101
Cancer Res; 41(11,part1):4280-4283 1981

A 9-yr-old white boy developed a fatal primary Epstein-Barr virus (EBV) infection while receiving chemotherapy for acute lymphoblastic leukemia in remission. Histopathological findings at the height of the proliferative phase of the illness were compatible with a virally induced hemophagocytic syndrome. The infection spontaneously converted to complete aplasia of the bone marrow and lymph nodes. Serological studies disclosed that the patient had no antibodies to EBV prior to the infection, but during the acute phase he showed a spectrum and titers of antibodies to EBV-specific antigens characteristic of a current primary EBV infection. A lymph node biopsy obtained 5 wk after onset revealed Epstein-Barr nuclear antigen in approx 50% of the cells. The boy's condition deteriorated rapidly, with disseminated candidiasis resulting in cardiorespiratory failure and death. Lymph nodes obtained at autopsy no longer contained Epstein-Barr nuclear antigen-positive cells. (Author abstract) (24 Refs)

32. ABSENCE OF ISOLATED TESTICULAR RELAPSE (ITR) IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) WITH A REPETITIVE REINDUCTION PROTOCOL (MEETING ABSTRACT).

Ravindranath Y, Warrier R
No affiliation given
J Pediatr; 98(6):1022 1981

Our data are in sharp contrast to the published reports of ITR. We have not encountered ITR as the sole initial relapse in any of 101 boys with ALL treated at our institution over an 11-yr period. Ten patients had mediastinal mass at presentation and 41 had WBC 20,000/mm3 at diagnosis. All were treated (for 5 yr) with identical chemotherapy and the last 62 patients in addition received intermittent intrathecal methotrexate (MTX) and fractional irradiation (IMFRA) CNS prophylaxis. Remission was induced with vincristine (VCR) 2 mg/m2, plus 6-mercaptopurine (6-MP) 2 mg/kg, and prednisone (Pred) 60 mg/m2 and maintained with alternating cycles of biweekly oral MTX 30 mg/m2 for 6 wk, and VCR + 6-MP + Pred for 4 wk. IMFRA CNS prophylaxis is given every 10 wk. The median duration of complete remission was 18 mo (range 1-20 mo) for patients prior to the introduction of CNS prophylaxis and it has not yet been reached in those receiving CNS prophylaxis (range 1-95 mo). Five of 26 patients off therapy had

relapse (3 bone marrow (BM), 1 CNS, and 1 simultaneous BM and CNS). Thus in a group of boys with ALL treated with a repetitive reinduction protocol, as described above. ITR as the sole initial recurrence was not seen on or off therapy. This suggests that an effective maintenance program prevents ITR and that the testis may not be a sanctuary site. (no Refs)

33. OUR EXPERIENCE WITH THE USE OF CHEMO- AND IMMUNOTHERAPY IN CHILDREN WITH ACUTE LEUKEMIA.

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Dept. Immunotherapy and Hematology, W. Pick Univ., Rostock, E. Germany

Probl Gematol Pereliv Krovi; 26(8):25-26 1981

The efficacy of nonspecific immunostimulation with BCG vaccine was studied in children with acute leukemia. BCG in combination with maintenance chemotherapy did not have advantages over polychemotherapy. BCG administration after polychemotherapy increased the duration of survival (5-yr-and-5-mo, compared with 3-yr-and-7-mo in children treated with polychemotherapy alone). (14 Refs) (In RUS)

34. HEMATOLOGICAL CHANGES IN CHILDREN WITH HODGKIN'S DISEASE TREATED WITH RADIATION THERAPY ONLY (MEETING ABSTRACT).

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Department of Pathology, Childrens Hospital of Los Angeles, Los Angeles, CA

Eighth European Congress of Pathology, August 30-September 4, 1981, Helsinki, Finland. The Congress 92 pp., 1981.

Patients are selected who have Hodgkin's disease and received radiation therapy only. There were equal number of male and female ranging in age from 4 yr to 17 yr, mean 10.4 yr. All patients were clinical stages I and II. Thirteen patients had a primary tumor located in the neck area, two had tumors located in the mediastinal area and one in elbow area. None showed metastatic disease. Radiation therapy was given in total dose of 3000 to 4400 Rads. No pelvic radiation was given. Patients showed expected decrease in WBC showing no difference among different stages, gender or age. Absolute decrease in eosinophils was accompanied by 106% increase in relative number of eosinophils four wk AIRT. Relative cosinophilia dropped to pre-therapy value and peaked once more in the tenth wk. The second increase was never previously reported. Neutrophils (relative number) showed prominent dip and recovered later. Monocytes (relative number) showed bipeak elevation up to 10.1% and later slow normalization. Lymphocytes showed parallel drop in absolute and relative count with steady recovery, but absolute lymphocytes reached only 69% of pre-therapy values. Female values consistently dropped deeper, especially in lymphocytic values. Age wise younger groups showed tendencies of faster and more complete recovery. No differences were noted in clinical stages nor histopathological classification. The possible etiopathogenesis of these hematological changes of children with Hodgkin's disease treated with radiation therapy only is discussed in depth. (no Refs)

35. THE PROGNOSTIC VALUE OF PRESENTING SERUM LDH IN NON-HODGKIN LYMPHOMA.

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J Pediatr; 99(4):611-613 1981

Serum lactate dehydrogenase (LDH) and disease course were reviewed in 23 consecutive pediatric patients (26 mo-17 yr old) with non-Hodgkin's lymphoma (10 Burkitt, 3 diffuse histiocytic, 8 diffuse lymphoblastic, and 2 undifferentiated non-Burkitt lymphomas) seen over a 48-mo period. Of the 23 patients, 22 were treated with multi-drug chemotherapy. The serum LDH value at diagnosis ranged from 160-6,100 IU/liter (IU/L). Of the 23 patients, 9 had presenting LDH values greater than 500 IU/L and 8 of these patients relapsed or died; one child whose initial LDH was 600 IU/L remained alive and was in continuous remission 22 mo after diagnosis. Among 14 patients with presenting LDH values less than 500 IU/L, a single relapse occurred in one child 24 mo after diagnosis. He remained alive and in remission on therapy 44 mo after diagnosis. The other 13 children were in continuous first remission from 3-45 mo after diagnosis. In the total patient group, a strong association between presenting LDH values greater than 500 IU/L and eventual relapse and death (P less than 0.01) was observed. Results indicated that serum LDH is a reliable indicator of current disease status for patients with non-Hodgkin lymphoma and a useful confirmation of remission status; it cannot be used to predict impending return of disease. (10 Refs)

36. SOUTHWEST ONCOLOGY GROUP EXPERIENCE WITH IMMUNOLOGICAL PHENOTYPING IN ACUTE LYMPHOCYTIC LEUKEMIA OF CHILDHOOD.

Pullen DJ, Falletta JM, Crist WM, Vogler LB, Dowell B, Humphrey GB, Blackstock R, Van Eys J, Cooper MD, Metzgar RS, Meydrech EF

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Cancer Res; 41(11,part2):4802-4809 1981

The Pediatric Division of the Southwest Oncology Group is attempting to define subgroups of acute lymphoblastic leukemia (ALL) by laboratory delineation of marrow lymphoblast characteristics at diagnosis. Immunological subclassification studies include erythrocyte-forming rosette (E-rosette), C3 receptor, Fc receptor, surface Ig (Sig) and cytoplasmic Ig (CIg) determinations, as well as p eripheral T (PT), thymocyte, Ia, and common ALL membrane antigen testing. Four subgroups of ALL have thus far been defined: null (SIg-, CIg,-, PT-); pre-B (SIg-, CIg+, PT-); B-cell (SIg+, CIg-, PT-); and T-cell (SIg-, CIg-, PT+). A group of 118 patients have had complete testing, and an additional 121 patients have had partial testing. Thirty-five patients with pre-B ALL and 27 patients with T-cell ALL have thus far been studied. Pre-B and null types of ALL appear closely related in multiple subclassification parameters (age, sex, physical findings, WBC count, and lymphoblast Ia and common ALL antigen positivity). Pre-B ALL patients treated with the same treatment regimens as were null ALL patients appear to have shorter durations of complete remission, although the difference has not yet reached statistical significance. Results suggest that the male predominance and older age distribution previously recognized for E-rosette-positive T-cell leukemia can also be expected in the E-rosette-intermediate and E-rosette-negative T-cell ALL subsets, although statistically higher WBC counts at diagnosis are seen in the E-rosette-positive subset. Mediastinal mass at diagnosis is most

likely in the patient with E-rosette-positive, thymocyte antigen-positive lymphoblasts. The E-rosette intermediate and E-rosette negative, as well as the E-rosette positive, T-cell ALL subsets appear to constitute poor prognosis categories. Correlation with treatment results is preliminary in all groups but suggests that stratification of ALL at diagnosis according to several immunological subgroupings may prove helpful in planning therapy. (Author abstract) (32 Refs)

37. A CLINICAL PERSPECTIVE ON CELL MARKERS IN ACUTE LYMPHOCYTIC LEUKEMIA.

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Cancer Res; 41(11,part2):4794-4801 1981

Two hundred consecutive new patients, with acute lymphocytic leukemia (ALL) have been studied with a battery of five cell marker assays to determine if a classification system with prognostic significance can be developed; 182 have been classified among four groups as follows: 33 T-cell, 3 B-cell, 126 common, and 20 undifferentiated ALLs. Patients with T-cell disease are likely to have unfavorable clinical prognostic features and a poor response to therapy. Rare patients with B-cell disease are closely related clinically to non-Hodgkin's lymphoma. Those with common ALL infrequently have unfavorable clinical features and have a superior outcome to that of T-cell patients. Children with undifferentiated markers seem to respond less well to treatment than do those with common ALL, yet may not be identifiable as poor risk by clinical features. What remains to be resolved with further observation is whether these marker patterns are more reliable indicators of prognosis than the usual clinical determinants predisposing to treatment failure (high WBC count, mediastinal mass, and CNS disease). At the present time, it appears that in the absence of poor-risk clinical prognostic features, patients with common ALL are more likely to have lasting remissions than those with RBC-rosette-positive T-cell disease or those with ALL that is undifferentiated by markers. (Author abstract) (9 Refs)

38. COMBINATION OF CHEMOTHERAPY, RADIOTHERAPY AND IMMUNOTHERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA IN CHILDREN.

Suvatte V, Mahasandana C, Tanphaichitr VS, Tuchinda S, Vootiprux V
Dept. Pediatrics, Siriraj Hosp., Mahidol Univ., Bangkok 7, Thailand
J Med Assoc Thai; 64(4):180-191 1981

From 1967 to 1979, 51 children (4 mo to 12 yr old; 30 boys, 21 girls) with acute lymphoblastic leukemia (ALL) were treated with a combination of chemotherapy, radiotherapy and immunotherapy. The plan of treatment depended on the economic status of the family. Two different protocols were used, differing in their use of vincristine and L-asparaginase (used in Protocol I and not in Protocol II) because of their expense. Twenty-six patients received Protocol I and 25, Protocol II. Fifteen patients (57.7%) in Protocol I and 13 (53%) in Protocol II were in continuous hematological remission from 22 mo to 13 yr. Eleven patients in each protocol died. Treatment was discontinued at 5 yr in 10 patients, nine of whom were still in complete remission and in good health from 5.5-13 yr after diagnosis. Since complications and toxicity in patients treated with Protocol I were similar to those seen in Protocol II and the results of treatment in both protocols were similar, the use of combined simple, non-expensive drugs was shown to be as effective as the use of expensive drugs. (44 Refs)

39. CYTOLOGICAL AND CYTOCHEMICAL ANALYSIS OF PLASMA CLOT CULTURES AND PERIPHERAL GRANULOCYTES RELATED TO LONG TERM SURVIVAL IN CHILDHOOD ALL AND CANCER PATIENTS UNDER CYTOSTATIC THERAPY.

Burk E, Chennaoui-Antonio L, Beiersdorf H, Hellwege HH, Winkler K, Heinisch B, Kustermann G, Krause U, Kitschke HJ, Voigt H, Neth R
Universitats-Kinderklinik Hamburg-Eppendorf, martinistrasse 52, 2000 Hamburg 20, W. Germany
Haematol Blood Transfus; 26:255-260 1981

Two yr follow up study of bone marrow cultures of childhood ALL patients showed high degree of variation in colony number, colony/cluster ratio, and peroxidase reaction. Instability of childhood ALL cultures could indicate granulopoiesis disturbance, which could be followed by relapse in case of additional noxa. Peripheral blood granulocytes of childhood ALL patients, and cancer patients receiving cytostatic therapy gave weak peroxidase reaction compared to normal controls. Peroxidase reaction of peripheral blood granulocytes was frequently decreased compared to normal reaction found in the colonies (plasma clot cultures). These results indicate that along with pathologically changed stem cells, morbid changes of the microenvironment also can lead to regulation disturbances in the differentiation and functional maturation of granulocytes. (4 Refs)

40. PREDICTIVE ABILITY OF LUKES-COLLINS CLASSIFICATION FOR IMMUNOLOGIC PHENOTYPES OF CHILDHOOD NON-HODGKIN LYMPHOMA: AN INSTITUTIONAL SERIES AND LITERATURE REVIEW.

Crist WM, Kelly DR, Ragab AH, Roper M, Dearth JC, Castleberry RP, Flint A
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Cancer; 48(9):2070-2075 1981

Tissues from 22 children with non-Hodgkin lymphoma (NHL) were studied pathologically and immunologically. Most children were noted to have marked (B- or T-cell) neoplasms and the Lukes-Collins classification was predictive of immunologic phenotype in cases where markers were presented. Our series and a review of the literature demonstrates that most abdominal NHL are B-cell in origin and are often small noncleaved follicular center cell lymphoma (Burkitt type). Most mediastinal primary lesions are T-cell in origin and of convoluted cell morphology. a few neoplasms (often peripheral nodal) lack the characteristic surface Ig or RBC rosetting properties of B- or T-cell lesions, respectively. Frequently marrow and CNS involvement are observed in T-cell lymphomas and are not infrequent in B cell neoplasms. Shared immunologic and clinical features between the B- or T-cell lymphomas and their leukemic counterparts support the concept that they often differ only in the stage of disease progression. (Author abstract) (22 Refs)

41. DIFFERENT THERAPY PROTOCOLS FOR HIGH RISK AND STANDARD RISK ALL IN CHILDHOOD.

Zintl F, Plenert W, Hermann J
Universitats-Kinderkinik, Kochstrasse 2, 69 Jena, E. Germany
Haematol Blood Transfus; 26:115-120 1981

Results of the administration of treatment protocols (Study IV, Study V, Study LSA2L2) to children with acute lymphocytic leukemia are described. For 111 patients treated in Study IV, cumulative complete remission rate at 3 yr was 0.56 +-

0.11 for the standard risk group and 0.44 +-0.07 for the high risk group. The cumulative remission rate at 2 yr in groups V and LSA2L2 was 0.79 for 111 standard risk patients and 0.50 for 58 children with high risk leukemia. The outcome was significantly worse for patients with leukocyte counts greater than 10(5) cells/cubic mm, with mediastinal masses, and in children less than 2 yr old or greater than 10 yr old. (6 Refs)

42. CHILDHOOD ACUTE LEUKEMIA: A SEARCH FOR OCCULT EXTRAMEDULLARY DISEASE PRIOR TO DISCONTINUATION OF CHEMOTHERAPY.

Mahoney DH, Gonzales ET, Ferry GD, Sanjad SA, Von Noorden GK, Fernbach DJ
Res. Hematology Lab., Texas Children's Hosp., 6621 Fannin St., Houston, TX, 7703 0
Cancer; 48(9):1964-1966 1981

Between January 1978 and September 1979, 29 children with acute leukemia in complete continuous remission for 3 or more yr were examined for evidence of occult extramedullary disease immediately prior to discontinuation of chemotherapy. Bilateral open wedge testicular biopsy demonstrated the presence of bilateral leukemic infiltrates in 2/13 boys. Gallium scans prior to biopsy had identified unilateral infiltration in an enlarged testis in one patient but failed to identify microscopic disease in the opposite testis or in the testes of the second patient. Percutaneous kidney and liver biopsies, pelvic ultrasonography, iv pyelogram, skeletal survey, cranial computed axial tomography scan, electroencephalography, and ophthalmologic examinations failed to demonstrate evidence of occult disease. Except for testicular biopsy, this study does not support extensive clinical or invasive procedures to identify extramedullary disease prior to discontinuation of chemotherapy. (Author abstract) (12 Refs)

43. THE EFFECTS OF LONG-TERM CHEMOTHERAPY ON THE CENTRAL NERVOUS SYSTEM OF CHILDREN WITH ACUTE LYMPHATIC LEUKEMIA (ALL) (MEETING ABSTRACT).

Kazuoka K, Hirota H, Iguchi K, Komada Y, Shimizu S, Ihara T, Kawamura Y, Taki N, Kamiya H, Sakurai M, Isawa T
Dept. Pediatrics, Sch. Medicine, Mie Univ., Tsu-shi, Mie Prefecture 514, Japan
Program and Abstracts of the 84th Annual Congress of Japan Pediatric Society held in Tokushima, Japan, 15-17 May, 1981. Japan Pediatric Society, Tokyo 160, Japan, 398 pp., 1981.

Fifty-three children with ALL have been treated according to a leukemia treatment protocol since 1975. In some of the patients who showed initial remission for 1 mo to more then 5 yr, slight abnormalities such as positive spikes and the admixture of slow waves were seen on the encephalograms, but these did not tend to increase after that. During the course of the observation such symptoms decreased in some patients. In several cases, decreased attenuation coefficience (DAC) was seen in the marginal regions of computerized tomography (CT) of the head, but it was only temporary in half of them. Even when there were no symptoms of leukoencephalopathy, DAC was seen in some cases. The intelligence quotient of the patients was about the same as the av value and showed no tendency to decrease even after 3 yr had elapsed. There were many abnormal findings on the tomograms and encephalograms of the patients who had accompanying meningeal leukemia. Long-term chemotherapy was not considered to have a serious effect on the CNS as long as there is no accompanying meningeal leukemia. (no Refs) (In JPN)

44. RECURRENT CHILDHOOD LYMPHOCYTIC LEUKEMIA: OUTCOME OF MARROW RELAPSES AFTER CESSATION OF THERAPY.

Rivera G
St. Jude Children's Res. Hosp., 332 North Lauderdale, P.O. Box 318, Memphis, TN, 38101
Haematol Blood Transfus; 26:94-98 1981

Clinical course of 56 patients retreated for bone marrow relapses that developed after cessation of intensive initial treatment is reviewed. Of 288 children in whom treatment for acute lymphocytic leukemia was stopped after 2-3 yr of complete remission, 72 relapsed, 56 with bone marrow recurrences. In 43/56 only marrow was involved, but in the remaining 13 testes and CNS were involved as well. Seventeen children with leukemia in relapse received reinduction chemotherapy with prednisone, vincristine and adriamycin (4 wk), and all were randomized at the time of remission to receive or not receive an intensive phase of chemotherapy with asparaginase and cytosine arabinoside (Ara-C). Continuation therapy consisted of mercaptopurine and methotrexate (MTX). CNS prophylaxis was not used. Sixteen patients attained second remission, with a median duration of 10 mo. Each child relapsed again, eight in the marrow and six in the CNS. In 4/7 patients, remissions were again induced; 3/4 children relapsed after 1-7 mo, but 1/4 remained in remission 48+ mo after the end of treatment. In view of the rate of relapse and moderate toxicity encountered, another 23 patients received the same reinduction therapy with the addition of four weekly injections of MTX and Ara-C, 30 mo of continuation therapy with Ara-C and MTX along with intrathecal injections every 6 wk, a late intensive phase of chemotherapy with vincristine, prednisone, and adriamycin, and CNS prophylaxis. All 23 patients attained complete remission. The median duration of hematologic remission was 14 mo (3-50+). Although 14 patients relapsed in the marrow, none developed CNS relapse. The results indicated that prolonged second remissions are attainable in approx 1/3 of patients who develop marrow relapse after elective cessation of cure-oriented therapy. (14 Refs)

45. TREATMENT STRATEGY FOR DIFFERENT RISK GROUPS IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA: A REPORT FROM THE BFM STUDY GROUP.

Henze G, Langermann HJ, Ritter J, Schellong G, Riehm H
(c/o Riehm) Kinderklinik, Freien Universitat Berlin, Heubnerweg 6, 1000 Berlin 19, W. Germany
Haematol Blood Transfus; 26:87-93 1981

Results of treatment of 277 childhood acute lymphoblastic leukemia patients in two studies (BFM 70/76 and BFM 76/79) are reported. Treatment protocols are outlined. Remission rates were comparable in both studies. Two patients with B-cell leukemia, one in study BFM 70/76 and one in study BFM 76/79, did not respond to therapy. During remission induction, deaths (5 in BFM 70/76 and 4 in BFM 76/79) were mainly due to infectious complications. Fourteen patients (8 in BFM 70/76 and 6 in BFM 76/79) died during remission, 11 due to infectious complications. Another three patients died of toxic side effects of therapy: pulmonary fibrosis caused by methotrexate, encephalopathy due to vincristine, and brain stem necrosis of unknown origin. Significant risk factors in the BFM 70/76 group were peripheral blast cell count and liver and spleen enlargement. In study BFM 76/79, only age greater than 10 yr was found to influence prognosis. Prognosis was independent of the presence of T-cell characteristics. Patients are assigned

to risk groups. BFM 70/76 and BFM 76/79 protocols are evaluated in relation to risk groups. (13 Refs)

46. FOLLICULAR (NODULAR) LYMPHOMA DURING THE FIRST TWO DECADES OF LIFE: A CLINICOPATHOLOGIC STUDY OF 12 PATIENTS.

Winberg CD, Nathwani BN, Bearman RM, Rappaport H
City of Hope Natl. Medical Center, 1500 East Duarte Road, Duarte, CA, 91010
Cancer; 48(10):2223-2235 1981

Twelve patients who developed non-Hodgkin's lymphoma with a follicular pattern during the first two decades of life were studied. Eight had the poorly differentiated lymphocytic type; the remaining four had the 'histiocytic' type. Eleven of the 12 patients were male. Nine were asymptomatic, and eight had lymphadenopathy in the head and neck region. Comparison of ages revealed the extent of disease tended to be localized (Stages I and II) in the pediatric (less than 16 yr old) patients (83%) and generalized in the adolescent-young adult (16-19 yr old) patients (83%). Of 10 patients treated with chemotherapy and/or radiotherapy, 8 achieved complete remissions that lasted 3-58 mo (median, 17.5 mo). Five are still in remission; three have relapsed. Seven are alive 12-120 mo from diagnosis (median, 48 mo); six have no clinical evidence of disease. The remaining five patients died two to 164 mo after diagnosis (median, 13 mo). Three of the four patients who died with lymphoma had diffuse 'histiocytic' lymphoma demonstrated at autopsy examination. Poor prognostic factors included (1) failure to achieve a complete remission following initial therapy; (2) extranodal disease (with the exception of the poorly differentiated lymphocytic type involving the spleen and liver); (3) development of diffuse 'histiocytic' lymphoma. Follicular lymphoma occurring in the second decade of life has a biologic behavior similar to follicular lymphoma in adults. (Author abstract) (53 Refs)

47. GLUCOSE-6-PHOSPHATE DEHYDROGENASE ACTIVITY AND REDUCED GLUTATHIONE LEVEL IN THE ERYTHROCYTES OF CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

Warchol T, Radwanska U, Karon H
Zaklad Chemii Rizjologicznej, Instytut Nauk Fizjologicznych Akademii Medycznej, ul. Swiecickiego 6, 60-781 Poznan, Poland
Acta Haematol Pol; 12(2):85-89 1981

The glucose-6-phosphate dehydrogenase (G-6-PDH) activity and reduced glutathione (RG) level of erythrocytes were studied in children (2.5-13 yr old) with acute lymphoblastic leukemia. Ten healthy children of the same age group were used as controls. Both the G-6PDH activity and the RG level were appreciably but insignificantly elevated in the patients compared with the controls before the therapy, and they were increased significantly compared with both the controls and the pre-therapy values during remission achieved by polychemotherapy. The G-6-PDH activity and RG level returned to the normal range 5-24 mo after the end of the chemotherapy. (18 Refs) (In POL)

48. PRESENT PROBLEMS IN MANAGEMENT OF CHILDHOOD LYMPHOBLASTIC LEUKAEMIA: EXPERIENCE FROM THE HOSPITAL FOR SICK CHILDREN, LONDON.

Chessells JM, Ninane J, Tiedemann K
No affiliation given
Haematol Blood Transfus; 26:108-114 1981

The major problem in management of childhood lymphoblastic leukemia remains that of hematological relapse; the proportion of deaths in remission also gives cause for concern. Analysis of data showed that death in remission was seen primarily in patients with 'standard' prognostic features (age less than 14 yr at diagnosis and pre-treatment leukocyte count of less than 20 x 10(9)/liter). Among patients receiving standard CNS prophylaxis with cranial irradiation and intrathecal methotrexate, measles pneumonia was the most common cause of death. Relative efficacy and immunosuppression of 6-mercaptopurine and methotrexate given in equivalent dose either continuously or intermittently in a 5-day course every 3 wk were examined. No differences in remission durations were observed. The value of early intensive induction with cyclophosphamide, cytosine arabinoside, prednisolone and vincristine was compared with simply continuing chemotherapy with a rotating intermittent multiple drug schedule. Preliminary results showed no advantage for intensive induction or for multiple agent maintenance over the simpler schedule. Long-term follow-up showed that boys fared significantly worse than girls. (9 Refs)

49. MALIGNANT LYMPHOMA IN CHILDHOOD: SPECIAL ASPECTS.

Wagner HP
Institut fur klinisch-experimentelle, Tumorforschung der Universitat Bern Tiefenauspital, CH-3004 Bern, Switzerland
Ther Umsch; 38(9):920-925 1981

The incidence, diagnosis, and treatment of Hodgkin's disease (HD) and non-Hodgkin's lymphoma (NHL) in childhood are reviewed. Unlike NHL, HD is rare under the age of 5 yr. The ratio of boys to girls is 1.5:1 for HD and 4.5:1 for NHL. The initial symptoms of HD are cervical lymph node enlargement in more than 75% of all cases. The symptoms of NHL are variable, depending on the localization of the primary tumor. Abdominal localization, seen in 30% of all children with NHL, often causes acute abdomen. NHL mimicks recurrent tonsillitis in 15% of all cases. Diagnosis and staging are based on histology. Immunological examinations are more significant in NHL than in HD. Complete remission can be induced in more than 95% of all children with HD, and more than 90% of them remain in first remission for more than 2 yr. Even the therapy of recurrences is very effective, which might lead to a less aggressive primary treatment. Complete remission can be induced in 80-90% of all children with NHL, but approx 25% of these patients develop recurrences within 2 yr. The 2-yr survival rate of the children with NHL is estimated at 55-60%. Recurrence can develop even 5 or more yr after recurrence-free survival. (9 Refs) (In GER)

50. CHILDHOOD LYMPHOBLASTIC LYMPHOMA.

Giangaspero F, Vecchi V, Camerlo F, Pession A, Bondi A
Istituto di Anatomia e Istologia Patologica, Policlinico S. Orsola, via Massarenti, 9, 40138 Bologna, Italy
Haematologica (Pavia); 66(1):68-79 1981

Pathological and clinical features of childhood lymphoblastic lymphoma are presented. Between 1975 and 1979, 27 patients

were admitted with non-Hodgkin's lymphoma and 20 cases were confirmed histologically. In eight patients (3.5-10 yr old; 7 male and 1 female) lymphoblastic lymphoma was diagnosed. Wollner classification identified two Stage II, three Stage III, and three Stage IV. Immunologic typing was performed in three cases: two of these had neoplastic cells of thymic origin and in one case lymphocytes were 'null.' All patients received combined radio- and chemotherapy. Seven had complete remission 1 mo after the start of therapy; one not achieving complete remission died 18 mo later. Two patients died of widespread disease and leukemia after 12 and 15 mo; both had relapsed within the first yr of treatment. After 42 mo four were in first complete remission, with one in second complete remission: two patients with Stage II and II disease suspended all treatments after 13 and 19 mo, respectively. (25 Refs) (In ITA)

51. PNEUMATOSIS INTESTINALIS IN CHILDREN WITH LEUKAEMIA: REPORT OF THREE CASES.

Galal O, Osse G, Weigel W, Gahr M

(c/o Gahr), Unviersitats-Kinderklinik Gottingen, Humboldtallee 38, D-3400 Gottingen, W. Germany

Eur J Pediatr; 137(1):91-93 1981

Pneumatosis intestinalis (PI) complicating acute lymphoblastic (2 patients) or myelocytic (1 patient) leukemia in three female children is described. The etiology of PI could not be determined in these cases. PI may result when gas is forced mechanically into the bowel wall. Two major causes seem to predispose to PI: direct lesion of the mucosal layer of the intestinal tract (ie ulcer, tumor, volvulus, pyloric stenosis, perforation, infection, chronic enteritis) or trauma resulting from sigmoidoscopy or from pulmonary disease with cough. Of these three patients, one had cough, no x-ray evidence of pulmonary disease, but distended abdomen. One patient had signs of severe abdominal disease; the third patient had no clinical signs of enteritis, colitis, or pulmonary disease. All three patients were under cytostatic therapy and had terminated steroid therapy some days before detection of PI. Surgical intervention was not necessary in any of the three patients. Whether the gas cysts disappeared spontaneously or as a result of metronidazol therapy is uncertain. (10 Refs)

52. CHARACTERISTIC FEATURES OF ACUTE LYMPHOBLASTIC LEUKEMIA IN CHILDREN WITH 0-CELLS IN THE BONE MARROW AND PREDOMINANCE OF T- OR B-CELLS IN THE PERIPHERAL BLOOD.

Lenskaia RV, Samochatova EV, Rumiantsev AG, Izotova TA

No affiliation given

Probl Gematol Pereliv Krovi; 26(7):20-24 1981

Different markers of the leukemic cells in the bone marrow and the peripheral blood were reported in 11 children (5 boys, 6 girls, aged 4 to 13 yr) with acute lymphoblastic leukemia (ALL). Examination of the bone marrow showed total metaplasia with lymphoid leukemic cells; greater than 80% of leukemic cells could be identified as null-lymphocytes. Analysis of the lymphoid cells in the peripheral blood showed predominance of T-lymphocytes in 10 patients and predominance of B-lymphocytes in 1. Chemotherapy (prednisone in combination with vincristine) induced stable and prolonged remission in 10/11 patients. (8 Refs) (In RUS)

OTHER RELATED CLINICAL STUDIES

53. PEDIATRIC BRACHYTHERAPY.

Goffinet DR, Martinez A, Pooler D, Palos B, Donaldson SS

Dept. Radiology, Div. Radiation Therapy, Stanford Univ. Hosp., Palo Alto, CA

Modern Interstitial and Intracavitary Radiation Management. George FW, ed. New York, Masson Publishing USA, Inc., Cancer Management, Vol. 6, 132 pp., 1981.

Six pediatric patients (aged 14 mo to 18 yr) with rhabdomyosarcoma (2), osteogenic sarcoma (2), angiosarcoma (1), or retinoblastoma (1) were treated by intraoperative interstitial implant. Implant sites were vagina, parotid region, gluteal musculature, thigh, pterygoid area, and hip resection margin. Removable 192Ir afterloading implants were used in 4/6 patients, while both patients with osteosarcoma received 125I Vicryl suture implants. Pre- or postoperative external beam irradiation was also used in three patients; the remaining three received only interstitial implants. Case history and treatment course for each patient are detailed. Local control was achieved in all six patients for follow-up periods between 3 and 18 mo. Except for one patient with hip disarticulation, functional results after surgery and implantation were considered excellent. No postoperative complications or late joint contractures, significant soft tissue sequelae, or vascular injuries were noted in any of the patients. The use of interstitial (and where possible removable) implants is recommended in selected pediatric oncologic patients whose primary neoplasms are localized and involve sites such as the proximal extremities. (20 Refs)

54. PROTECTED ISOLATION (PI) FOR PEDIATRIC CANCER PATIENTS (PTS) RECEIVING INTENSIVE CHEMOTHERAPY (IC): INFLUENCE OF AUTOLOGOUS BONE MARROW RESCUE (ABMR) ON INFECTIOUS COMPLICATIONS (MEETING ABS TRACT).

Pizzo PA

National Cancer Insititute, Bethesda, MD

Program and Abstracts of the 21st Interscience Conference on Antimicrobial Agents and Chemotherapy, November 4-6, 1981, Chicago, Illinois American Society for Microbiology; :A799 1981

PI (laminar air flow room, nonabsorbable antibiotics, low microbial diet, cutaneous decontamination) has been shown to reduce infectious morbidity and mortality in pts with protracted granulocytopenia (G). If the duration of G can be shortened by ABMR, PI may be unnecessary. Between 1975-1981, we treated 108 pts (mean age 17.4 yr) with IC resulting in a median duration of G of 24 days (7-75). Underlying malignancies included leukemia (7), lymphoma (31), neuroblastoma (8), sarcomas (62). Overall, 78 pts received IC in PI (duration of G: 25.9 days), and 30 pts in a regular hospital room (R) (duration of G: 18 days). The incidence of septicemia was 16.7% for PI pts vs 36.7 pts for R and the percentage of fatal infections was 1.3% for PI pts vs 13.3% for R. ABMR was performed in 42/108 pts receiving IC, the median duration of G being 23 days. Overall incidence of F or infection for ABMR pts was 40/42 (95%). Twenty-four ABMR pts were randomized to receive IC in a PI, 18 in R. The incidence of septicemia was 20.8% in ABMR-PI pts vs 33.3% in ABMR-R. No fatal infections occurred in the ABMR-PI pts compared with 1/18 in the ABMR-R. These preliminary observations show that the PI reduces serious infections and mortality in pediatric cancer pts receiving IC with prolonged G and that these complications may not be overcome by ABMR. (no Refs)

55. TREATMENT OF MALIGNANT TUMORS IN BIOCLEAN ROOMS (LAMINAR AIR FLOW AND CONVENTIONAL BIOCLEAN ROOMS) (MEETING ABSTRACT).

Ohira M, Omiya A, Hirose M, Ise T
Dept. Pediatrics, Natl. Cancer Center Hosp., Chuo-ku, Tokyo 104, Japan
Program and Abstracts of the 84th Annual Congress of Japan Pediatric Society held in Tokushima, Japan, 15-17 May, 1981. Japan Pediatric Society, Tokyo 160, Japan, 398 pp., 1981.

A laminar air flow bioclean room and two conventional bioclean rooms built in 1979 and 1980 were used to treat patients with malignant tumors axenically. The patients treated in these rooms were 1 to 11 yr old, two had acute lymphatic leukemia, four had acute myelogenous leukemia, one had acute myelogenous monocytic leukemia, two had T-cell lymphoma, one had retinoblastoma, one had a yolk-sac tumor and one had rhabdomyosarcoma. The patients who were to be in the laminar air flow bioclean room (class 100), had their hair cut short, were bathed in Hibitane, were given an axenic diet, were given large doses of a nonabsorbed oral antibiotic, and were sterilized by antibiotic nebulizers and ointment. The family was allowed to care for the patient only when necessary and only through a vinyl sheet. The conventi onal bioclean room was disinfected by spraying chemicals in the room and wiping it clean. Food was not sterilized and the family was allowed to care for the child. In the laminar air flow bioclean room, although the peripheral WBC count was less than 500 for a long time, the number of days that the child had a fever was less than that for a child in the general hospital room, and no serious infectious diseases developed. The conventional bioclean room was also effective in preventing infectious respiratory diseases, and potent multiple drug therapy could be performed easily. The laminar air flow bioclean room is essential for patients who have diseases accompanied by extreme immunosuppression, but the conventional bioclean room can be used even by seriously ill children. (no Refs) (In JPN)

56. SOCIAL WORK INTERVENTION WITH PEDIATRIC ONCOLOGY PATIENTS (MEETING ABSTRACT).

Picus L
Penrose Cancer Hospital, Colorado Springs, CO
Social Work in Cancer Care, July 2-3, 1981, Pittsfield, Massachusetts. Social Work Oncology Group 149 pp., 1981.

It is essential for social work intervention to meet the needs of the child with cancer, the parents, and the siblings as an entire family unit. It has been found that stress can be minimized if the family understands what to anticipate. For the preschool and school age child explanations of procedures in his language, praise, and small rewards help the child cope with the immediate situations. Play therapy provides symbolic expression of the child's fears and anxieties and it can be used both as an educational tool and as an emotional outlet. Educationally, toys (ie puppets, telephones, dolls) can facilitate a familiarity with the equipment and procedures that doctors and nurses will use. In preparation for radiation therapy chemotherapy, lab work, spinal taps and bone marrows, the use of a 'child-sized' Raggedy Ann doll has proved invaluable. Giving the child an opportunity to perform these procedures on a doll, allows the child to be in control during play, a feeling seldom experienced by patient with cancer. Using the doll prior to treatments, provides a perfect milieu for group process with other patients and siblings. So as a learning tool, play serves to educate both children in a group setting and individually. The social worker can help facilitate play and can also teach parents to encourage this verbal expression at home. It is essential to advocate familial communications. The social worker, through techniques of observation and interviewing, can assess the family's ability to cope as a unit. A parent support group can enhance expression and sharing. Increased skills around issues of discipline, sibling rivalry, isolation, and the child's self esteem can be fostered in a group. The coping abilities of the child will depend on the strengths of th e family. (no Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

57. MONOSOMY 7 IN CHILDHOOD: A MYELOPROLIFERATIVE DISORDER.

Sieff CA, Chessells JM, Harvey BA, Pickthall VJ, Lawler SD
Dept. Haematology and Oncology, Hosp. Sick Children, Great Ormond St., London WC1N 3JH, England
Br J Haematol; 49(2):235-249 1981

Between 1976 and 1979 a myeloproliferative disease associated with cells monosomic for chromosome number 7 in the bone marrow was seen in six boys aged 5 1/2 mo to 8 yr (median 10 mo). Presenting features included hepatosplenomegaly (5/6), respiratory infections (4/6), pallor (2/6) and skin infections (1/6). Hematological features included a leukoerythroblastic anemia with leukocytosis and thrombocytopenia, and a hyperplastic marrow with a slight excess of blasts. Fetal Hb was normal in four patients and mildly raised in the other two. Neutrophil function tests showed defective chemotaxis with reduced killing, despite a normal NBT test. Cytogenetic analysis of the marrow showed a preponderance of cells with monosomy 7; the blood lymphocytes were cytogenetically normal. In three patients the disease progressed to acute myeloid leukemia (AML) after 3 wk to 23 mo; the only patient who remitted did so in response to 6-mercaptopurine and prednisolone, but relapsed 16 mo later. A fourth child developed massive splenomegaly which initially responded to 6-mercaptopurine and prednisolone, but progressed to myelofibrosis 11 mo later. A fifth child died from anemia and respiratory infection without progression to leukemia and the sixth patient has not yet developed leukemia. Monosomy 7 is the diagnostic criterion of one of the more common myeloproliferative states in childhood and carries a high risk of progression to AML. The acute phase is usually resistant to chemotherapy, but even in responsive cases treatment does not result in elimination of the abnormal clone. Allogeneic bone marrow transplantation should be considered in cases with a suitable donor. (Author abstract) (19 Refs)

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AUTHOR INDEX WITH CITATION NUMBERS

Abe J. 27
Abramson CS. 24
Albo V. 26
Alonso NO. 2
Arguelles MT. 2
Aur RJ. 37
Bauer SB. 9
Bearman RM. 46
Bechtelsheimer. 12
Beiersdorf H. 39
Belasco J. 7
Blackstock R. 36
Blau GI. 33
Bloom SR. 14
Bloomfield CD. 24
Bondi A. 50
Bowman WP. 37
Brasch RC. 5
Breyer B. 6
Brodeur GM. 11
Bruce DA. 16
Brunning RD. 24
Burk E. 39
Busilacchi P. 4
Bustamante S. 8
Caces J. 11
Callihan T. 31
Camerlo F. 50
Candiani F. 4
Casper J. 17
Castleberry RP. 40
Cepulic E. 6
Cepulic M. 6
Chennaoui-Anton. 39
Chessells JM. 48
Chessells JM. 57
Chetty-Baktaviz. 9
Clausen N. 30
Coccia PF. 24
Colodny AH. 9
Cooper MD. 36
Cornet J. 17
Crist WM. 36
Crist WM. 40
D. 23
D'Angio GJ. 23
D'Angio GJ. 7
Dearth JC. 40
Donaldson M. 23
Donaldson SS. 53
Dowell B. 36
Evans WE. 17
Falletta JM. 36
Ferenczy A. 2
Fernbach DJ. 42
Ferry GD. 42
Flint A. 40
Foulkes M. 1
Freeman AI. 28
Fuente EM. 2
Futaki Y. 27
Gahr M. 51
Gajl-Peczalska. 24
Galal O. 51
Gerber A. 8
Giangaspero F. 50
Giuseppetti G. 4
Goffinet DR. 53
Gold JH. 8
Gonzales ET. 42
Gonzalez-Crussi. 10
Gould RG. 5
Greaves M. 15
Green AA. 17
Gustafson RO. 13
Hammond. 23
Hammond D. 26
Hanefeld F. 18
Harvey BA. 57
Hayes FA. 17
Heinisch B. 39
Hellwege HH. 39
Helpap B. 12
Henle W. 31
Henze G. 45
Hermann J. 41
Herrod HG. 31
Hirose M. 55
Hirota H. 43
Hittle R. 23
Howarth CB. 11
Hsueh W. 10
Humphrey GB. 36
Hustu HO. 11
Iguchi K. 43
Ihara T. 43
Isawa T. 43
Ise T. 55
Izotova TA. 52
Jaroffke B. 18
Kamata K. 22
Kamiya H. 43
Karon H. 47
Karon M. 26
Kawamata M. 22
Kawamura Y. 43
Kazuoka K. 43
Kelly DR. 40
Kemshead JT. 15
Kersey JH. 24
Kitschke HJ. 39
Kleinsasser O. 3
Komada Y. 43
Krause U. 39
Kustermann G. 39
Lack EE. 9
Langermann HJ. 45
Laurent JP. 16
Lawler SD. 57
Lawrence W. 1
LeBien TW. 24
Leiken S. 26
Lenskaia RV. 52
Lindberg RD. 1
Lipsey AI. 34
Littman P. 23
Long RG. 14
Look AT. 31
Lorch V. 8
Mahasandana C. 38
Mahnovski V. 34
Mahoney DH. 42
Malpas JS. 15
Mancini AF. 25
Maragos NE. 13
Martin G. 3
Martin JA. 2
Martinez A. 53
Martinez AM. 2
Mauer AM. 37
Maurer HM. 1
McKenna RW. 24
Melvin SL. 37
Metzgar RS. 36
Meydrech EF. 36
Miller DR. 26
Mirk P. 4
Mirza M. 8
Mizoi K. 20
Murad TM. 21
Naegele RF. 31
Nathwani BN. 46
Neerhout RC. 35
Nesbit M. 23
Nesbit ME. 24
Neth R. 39
Newton WA. 1
Ninane J. 48
Nomura K. 19
Ohira M. 55
Okada K. 22
Omiya A. 55
Onoe S. 27
Ortega J. 23
Osse G. 51
Oyake Y. 22
Pakula V. 34
Palos B. 53
Pedersen H. 30
Pession A. 25
Pession A. 50
Pickthall VJ. 57
Picus L. 56
Pino JA. 21
Pizzo PA. 54
Plenert W. 41
Pooler D. 53
Pratt CB. 11
Pritchard J. 14
Pritchard J. 15
Pullen DJ. 36
Radwanska U. 47
Ragab AH. 1
Ragab AH. 40
Randel SB. 5
Raney RB. 1
Rappaport H. 46
Ravindranath Y. 32

Reiman HM. 13
Retik AB 9
Ridgway D 35
Riehm H 45
Ritter J 45
Rivera G 44
Roper M 40
Rosito P 25
Rubaltelli L 4
Rumiantsev AG 52
Sakurai M 43
Sallan SE 29
Samochatova EV 52
Sanjad SA 42
Sather H 23
Sather H 26
Schellong G 45
Schultz M 33
Schut L 16
Shimizu H 27
Shimizu S 43
Sieff CA 57
Siegert M 18
Siemes H 18
Sinks LF 28
Smiley S 35
Snyder HM 9
Sumi K 27
Suvatte V 38
Suzuki J 20
Tagawa T 27
Takaku A 20
Taki N 43
Tanaka R 22
Tanphaichitr VS 38
Tefft M 1
Tiedemann K 14
Tiedemann K 48
Totovic V 12
Tsuchida T 22
Tuchinda S 38
Ugarte N 10
Van Eys J 36
Vargas JR 21
Vecchi V 25
Vecchi V 50
Vivarelli F 25
Vogler LB 36
Voigt H 39
Von Noorden GK 42
Vootiprux V 38
Wagner HP 49
Wang JJ 28
Warchol T 47
Warrier R 32
Weigel W 51
Winberg CD 46
Winkler K 39
Yabuuchi H 27
Zintl F 41

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In this issue:

- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 1-12
- OSTEOSARCOMAS, EWINGS' SARCOMAS AND OTHER BONE TUMORS..... 13-16
- NEUROBLASTOMAS AND CNS TUMORS..... 17-29
- LYMPHOMAS AND LEUKEMIAS..... 30-49
- OTHER SOLID TUMORS OF CHILDHOOD..... 50-54
- OTHER RELATED CLINICAL STUDIES..... 55-67
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 68

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

1. CT DEMONSTRATION OF FAT TISSUE IN MALIGNANT RENAL NEOPLASMS: ATYPICAL WILMS' TUMORS.

Parvey LS, Warner RM, Callihan TR, Magill HL
Dept. Diagnostic Imaging, St. Jude Children's Res. Hosp., 332 North Lauderdale, Post Office Box 318, Memphis, TN, 38101
J Comput Assist Tomogr; 5(6):851-854 1981

It has been implied that the recognition of fat in a renal tumor suggests that the lesion is benign. Several authors have suggested that angiomyolipoma is the only common renal tumor containing mature adipose tissue. Other neoplasms may

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contain mature fat that can be identified with current diagnostic imaging techniques. Under discussion is our experience with Wilms' tumor containing a predominance o f adipose tissue. (Author abstract) (13 Refs)

2. RADIOLOGIC AND PROGNOSTIC ASPECTS OF WILMS' TUMOUR.

Andresen J, Steenskov V
Dept. Diagnostic Radiology, Aarhus Kommunehospital, DK-8000 Aarhus, Denmark
Acta Radiol [Diagn] (Stockh); 22(3B):353-358 1981

Retrospectively the urographic findings, history, clinical signs and surgical/pathologic features of 46 Wilms' tumors were analyzed. Impaired or no function of the kidney was associated with a high incidence of defects of the renal pelvis and invasion of the renal vein. A high rate of non-radically operated or inoperable tumors and high mortality was present in these cases. (Author abstract) (8 Refs)

3. RADIOLOGICAL DIAGNOSTICS AND RADIOTHERAPY IN WILMS' TUMOR.

Kutzner J
Institut f. Klinische Strahlenkunde d. Univ.-Kliniken Mainz, 6500 Mainz, W. Germany
Klin Paediatr; 193(3):225-229 1981

The use of computed tomography and ultrasonography in the diagnosis of Wilms' tumors and the use of combined radiotherapy, chemotherapy, and surgery for the treatment of these tumors are discussed. Depending on the age of the patient and the extent of the tumor, 20-30 grays should be adequate in such a multidisciplinary regimen. Preoperative radiotherapy may improve the surgical outcome for large tumors. In Stage I and II infants and in Stage I children, radiotherapy can be omitted. (25 Refs) (In GER)

4. WILMS' TUMOR.

Opric M, Kezic J
Odeo za Decju Patologiju, Institut SRS za Zdravstvenu Zastitu Majke i Deteta, Radoja Dakica 8, 11070 Novi Beograd, Yugoslavia
Libri Oncol; 10(1):33-40 1981

In the period 1976-1979, 28 children (10 boys and 18 girls, less than 1-11 yr old) with Wilms' tumor were treated. Location was in the left kidney in 18 patients, right kidney 9, and in 1 case bilateral. Metastases were present in lymph nodes in 6 cases, in lung in 3 cases. Age distribution of tumors was: 4 less than 1 yr, 7 1-2 yr old, 5 2-3 yr, 4 3-4 yr, 1 4-5 yr, 3 5-6, one each the following three yr, and one 11 yr old. Histologically stroma was fibromatoid with scattered areas of mixoid degeneration and necrosis. Most tumors were stromal (fibroid) and tubular (21). glomeruli were present in nine cases. Histology alone did not correlate with prognosis. Clinical staging should be considered with histologic resulta, and presence of lesions such as blastema, nephroblastomatosis, or hamartoma in assessment of prognosis. (13 Refs) (In SCR)

5. BONE METASTASES IN WILMS' TUMOR IN RELATION TO HISTOLOGIC GRADING.

Brandeis WE, Bolkenius M, Daum R, Schabbert S, Ludwig R, Appell R, Oppermann HC, Georgi G, Wurster K
Sektion Onkologie-Immunologie, Universitats-Kinderklinik, Im Neuenheimer Feld 150, 6900 Heidelberg 1, W. Germany
Klin Paediatr; 193(3):232-237 1981

In 86 Wilms' tumor patients, sarcomatous tumors were associated with an unfavora ble prognosis. Metastases developed in all Stage III-V patients. Sarcomatous type tumors, unlike other Wilms' tumors were associated with bone rather than lung metastases. Boys less than 5 yr old were mostly affected by the tumor. The radionuclide diagnosis and treatment of these tumors are discussed. (24 Refs) (In GER)

6. BILATERAL WILM'S TUMOR: ON THE FACTORS HINTING AT A GOOD PROGNOSIS (MEETING ABSTRACT).

Tsunoda A, Nishi T, Yamada R, Yamamoto H, Misugi K
Dept. Surgery, Kanagawa Children's Medical Center, Minami-ku, Yokohama 232, Japan
Nippon Shonigeka Gakkai Zasshi; 17(3):498 1981

Two patients with bilateral Wilm's tumor were seen. One was a 1-yr and 8-mo-old girl. Angiography revealed typical malignant circulation in both kidneys. Presurgical radiotherapy, and administration of actinomycin D (AMD) and vincristine markedly reduced the size of the tumors in both kidneys. Laparotomy was performed after about 1 mo, the right kidney tumor was enucleated and biopsy of the left kidney was performed. Histologically, the right kidney showed a cystic form accompanied by glomerular structure, and the left kidney appeared to be necrotized. Following surgery, eight courses of AMD were given and no relapse had occurred within 3 yr. Angiography showed that the left kidney was completely restored while the right kidney had slightly abnormal function. The second patient was a 5-yr-old boy. He had laparotomy after Wilm's tumor in the left kidney was diagnosed and the left kidney and adrenals were extirpated. However, a tumorous lesion was found in the lower right kidney, and it was biopsied. Histologically, the left kidney had a glomerulate and renal tubular structure, but the right kidney had a heteroplastic structure. AMD was being given for 2 mo after surgery with no sign of relapse, and the tumor in the right kidney was no longer palpated, the kidney being restored. Of a total of 700 cases of Wilm's tumor reported in a nationwide survey, 31 were bilateral. Ten of these patients were still alive at the time of this study, and histological studies were made on their tumors. Whether aggressive surgery is necessary for bilateral Wilm's tumor is a matter of primary concern. The tumors in the two cases reported here were only biopsied. (no Refs) (In JPN)

7. EXTRACORPOREAL CIRCULATION DURING SURGERY FOR NEPHROBLASTOMA WITH GIANT TUMOR EMBOLISM (MEETING ABSTRACT).

Nakamura S, Fujino T, Nagahara S, Kawata H, Yamamoto Y, Rai A, Miyamoto K, Kadoba K, Kuroda O, Gomyo I, Kim S, Ogura S
Dept. Surgery, Children's Medical Center Osaka City, Higashinari-ku, Osaka 573, Japan
Nippon Shonigeka Gakkai Zasshi; 17(3):462 1981

Radical surgery was performed on a 3-yr-old boy in whom nephroblastoma was diagnosed by angiography. Angiography of the inferior vena cava revealed a giant tumor embolism situated b etween the affluxion portion of the renal vein and that of the hepatic vein. The left kidney had no abnormalities and distant metastases were not detected. Since it was not possible to extirpate the tumor embolism by excising the vein in the peritoneum, extracorporeal circulation was used. The right renal and splenic arteries were ligated, and the portal vein, peripheric inferior vena cava (actually the right testicular vein), left renal vein + artery and splenic vein were ablated and taped. The inferior vena cava centralis was also taped in the pericardium. The portal blood was returned to the right atrium

by extracorporeal circulation via the removed blood vessel inserted into the splenic vein while the portal vein was being blocked. The blood pressure of the superior and inferior vena cava, portal vein and artery was monitored. After the blood flow was blocked, the inferior vena cava was excised, the tumor embolism was removed in one mass, and then the blockage was removed with forceps. The blood was blocked off from the liver and healthy kidney for 15 min. The blood vessel was then sutured, the tumor was extirpated and the lymph nodes were dissected. The total blood loss was 1,800 ml. The tumor (histologically diffuse nephroblastic subtype) weighed 350 g. There was partial capsule invasion, but no lymph node metastasis. There was no damage to the hepatic or renal functions after surgery and chemotherapy + radiotherapy could be performed as scheduled. There was no relapse or metastasis even after 2 mo had elapsed after surgery when chemotherapy was still being continued. Extracorporeal circulation during surgery is recommended for patients with such a tumor embolism because it could prevent hemorrhagic shock. (no Refs) (In JPN)

8. OVARIAN TUMORS IN CHILDREN AND ADOLESCENTS.

Yakushiji M, Matsukuma T, Abe M, Nishida T, Nishimura H, Tsunawaki A, Kato T
Dept. Obstetrics and Gynecology, Kurume Univ., Sch. Medicine, Kurume-shi, Fukuoka Pref. 830, Japan
Nippon Sanka Fujinka Gakkai Zasshi; 33(6):833-838 1981

Seventy-six cases of ovarian neoplasms in persons under 20 yr old who had been treated at the Kurume University Hospital from January 1952 through December 1980 are presented. The incidence of ovarian tumors was 5.5% in all age groups; the youngest patient was 5 yr old and the mean age was 15. Histologically 48 (63%) of these tumors were of germ cell origin, a characteristic property of ovarian tumors occurring in childhood and adolescence. The 76 cases included 40 of malignant tumors, which were subdivided into 13 of embryonal carcinoma, 12 of solid teratoma, 9 of dysgerminoma, 5 of simple carcinoma, and 1 case of granulosa cell tumor. In all the cases the clinical stage was an important factor for prognosis, and the prognosis for embryonal carcinoma was poorest, with only 4 of 13 patients surviving. However t he prognosis for dysgerminoma was comparatively good, with eight of nine patients surviving. It is worthy of note that this tumor was highly radiosensitive, since three of four patients at Stage III or IV survived for over 5 yr. (Author abstract) (32 Refs)

9. TREATMENT OF MALIGNANT OVARIAN TUMORS IN GIRLS.

Durnov LA, Savinova VF, Zolotova VI
Dept. Children's Oncology, Cancer Res. Center, Moscow, USSR
Akush Ginekol (Mosk); (9):26-28 1981

A group of 65 girls (15 mo to 15 yr old) with ovarian tumors is reviewed. All patients were subjected to surgery. Histologically, there were 24 dysgerminomas, 18 teratoblastomas, 10 hormone-producing tumors, 7 carcinomas, 2 proliferating papillary cystadenomas, and 4 chorioepitheliomas. In addition to surgery (ovariectomy, supravaginal amputation of the uterus, extirpation of the uterus with adnexa, resection of the greater omentum), the Stage II-III patients received postoperative polychemotherapy. Of 24 dysgerminoma patients, 4 with Stage II died 3-5 yr after surgery and 11 with Stage III-IV died 1-5 mo after surgery. All of the patients with chorioepithelioma or carcinoma died 1-2 yr after surgery. (4 Refs) (In RUS)

10. TREATMENT OF TESTICULAR YOLK SAC CARCINOMA IN THE YOUNG CHILD.

Kaplan WE, Firlit CF
Div. Urology, Children's Memorial Hosp., Chicago, IL
J Urol; 126(5):663-664 1981

The majority of testicular tumors in children will be of germ cell origin and the predominant pathologic type is the yolk sac carcinoma. Initial treatment of radical orchiectomy is not in question. However, because of its presumed less virulent character, especially in children less than 2 yr old, confusion remains as to adjunctive treatment for yolk sac carcinoma. We have studied retrospectively 21 children with testis tumors encountered within the last 10 yr. Of these cases 12 were classified pathologically as yolk sac carcinoma. All children were less than 3 yr old and 10 of 12 were less than 2 yr old. Of the 12 cases 4 had positive lymph node dissections and 3 of these 4 children were less than 2 yr old. Although chemotherapy is so effective its toxicity cannot be minimized. Therefore, adjunctive chemotherapy should be reserved for those patients who have lymphatic spread. Young children with yolk sac tumors are not immune to metastatic disease and should be treated with an extended unilateral lymphadenectomy for staging and appropriate treatment regimens. (Author abstract) (11 Refs)

11. THE TREATMENT OF INFANTILE EMBRYONAL CARCINOMA (YOLK SAC TUMOUR) OF THE TESTIS IN CHILDREN.

Wobbes T, Oldhoff J, Koops HS, De Vries JA
Div. Surgical Oncology, Univ. Groningen, Groningen, The Netherlands
Z Kinderchir; 33(4):349-354 1981

Five cases of infantile embryonal carcinoma of the testis are reported. Patient 1, age 15 mo, showed retroperitoneal and mediastinal metastases 5 mo after orchiectomy. Metastases progressed during treatment with actinomycin-D, and the patient died 7 mo after orchiectomy. Patient 2 remained disease-free 6.5 yr after orchiectomy. Patients 3 and 4 were treated by orchiectomy and retroperitoneal lymph node (RLN) dissection. No lymph node involvement was found in either case. Both patients were disease-free after 2 and 3 yr. Laparotomy after orchiectomy showed inoperable RLN metastases in patient 5, age 54 mo. Lung metastases appeared before chemotherapy was begun. Intensive polychemotherapy with cisplatin, bleomycin, and vinblastine produced remission. Recommendations for staging and treatment include the following: Nonoperative staging under age 1 yr (if alpha-fetoprotein level and computed tomographic scan are normal after orchiectomy), staging with laparotomy between ages 1 and 2, RLN dissection under age 2 only when metastases are present, RLN dissection when possible after age 2 (bilateral only if metastases are present), and chemotherapy only if metastases are present. (18 Refs)

12. SUCCESSFUL TREATMENT OF METASTATIC EXTRAGONADAL ENDODERMAL SINUS (YOLK SAC) TUMOR IN CHILDHOOD.

Thomas WJ, Kelleher JF, Duval/Arnould B
Dept. Pediatrics, Naval Regional Medical Center, San Diego, CA, 92134
Cancer; 48(11):2371-2374 1981

Two children with metastatic extragonadal endodermal sinus tumor who had failed VAC chemotherapy were treated with combination chemotherapy consisting of cis-platinum, vinblastine, doxorubicin HCl (Adriamycin) and bleomycin (cis-VAB). There was a complete response in both patients with one child

remaining tumor-free 3 1/2 yr after metastasis and 2 1/2 yr after stopping therapy. The main toxic reactions encountered were associated with the use of cis-platinum, but these were manageable and resolved upon completion of therapy. Cis-VAB appears to be a safe and effective regimen for the treatment of metastatic endodermal sinus tumor. A study of the efficacy of cis-VAB in a larger group of children with endodermal sinus tumor of poor prognosis seems indicated. (Author abstract) (21 Refs)

OSTEOSARCOMAS, EWINGS' SARCOMAS AND OTHER BONE TUMORS

13. CLINICAL, RADIOLOGICAL AND PATHOLOGICAL STUDY OF EWING'S SARCOMA OF THE LUMBAR SPINE. ROUND CELL SARCOMAS. REPORT ON THREE CASES.

Vacher H, Vacher-Lavenu MC, Sauvegrain J
(c/o Sauvegrain) Service de radiologie, Hopital Necker, 149, rue de Sevres, F 75730 Paris Cedex 15, France
J Radiol; 62(8/9):425-428 1981

Two cases of primary bone condensation type Ewing's sarcoma of a lumbar vertebra are described in children aged 8 and 10 yr, as well as one case of the osteolytic form in a 14-yr-old child. Ewing's sarcoma very rarely occurs in the spine, and the type with bone condensation is almost exclusively of a primary nature. The tumor extends simultaneously into the epidural space and the perispinal planes. Intravenous urography and myelography with metrizamide are therefore essential for evaluating the degree of tumor extension. Computed tomography examinations are also now necessary. Prognosis is bad and current therapeutic possibilities limited. Histological diagnosis is the only means of distinguishing Ewing's sarcoma from other round cell sarcomas in or around the spine. (Author abstract) (12 Refs) (In FRE)

14. ON THE HISTOPATHOLOGICAL PROBLEMS AND DIAGNOSIS OF EWING'S SARCOMA.

Remagen W, Salzer-Kuntschik M
Knochentumor-Register b. d. schweiz. Gesellschaft fur Pathologie, Institut fur Pathologie der Universitat Basel, Schonbeinstrasse 40, CH-4056 Basel, Switzerland
Klin Paediatr; 193(3):251-253 1981

The diagnostic criteria for Ewing's sarcoma are surveyed. The histological and cytological findings are described with particular reference to diagnostic problems. The minimum requirements for a diagnostic work-up for Ewing's sarcoma are discussed. A schema for the diagnosis of this disease is presented. (16 Refs) (In GER)

15. SURGICAL TREATMENT OF EWING'S SARCOMA.

Winkelmann W
Orthopadische Universitats-Klinik, Mooresnstrasse 5, 4000 Dusseldorf, W. Germany
Klin Paediatr; 193(3):243-244 1981

Radical tumor surgery versus resection of tumor bulk with postsurgical radiation are considered as treatments for Ewing's sarcoma. In view of the poor functional results following complete removal of the tumor-bearing bone, it was suggested that tumor resection combined with radiotherapy may provide optimal function with minimal risk. The importance of accurate biopsy technic is discussed. (no Refs) (In GER)

16. ON THE CHEMOTHERAPY OF EWING'S SARCOMA.

Winkler K, Landbeck G
Abteilung fur Hamatologie und Onkologie, Universitat-Kinderklinik, Martinistrasse 52, 2000 Hamburg 20, W. Germany
Klin Paediatr; 193(3):239-242 1981

The use adjuvant chemotherapy is described for the treatment of Ewing's sarcomas in which pulmonary and skeletal metastases are common after local treatment. Actinomycin D, cyclophosphamide, vincristine, and anthracyclines are commonly used. Two-yr disease-free survival rates of 80% have been obtained through the use of polychemotherapy. The combined use of radiotherapy and chemotherapy has produced good local control but also bone and soft tissue toxicity. Radiotherapy dosage adjustment and the use of surgery in the treatment of Ewing's sarcomas are considered in light of these toxicities. (31 Refs) (In GER)

NEUROBLASTOMAS AND CNS TUMORS

17. SEQUENTIAL CYCLOPHOSPHAMIDE AND DOXORUBICIN FOR INDUCTION OF COMPLETE REMISSION IN CHILDREN WITH DISSEMINATED NEUROBLASTOMA.

Green AA, Hayes FA, Hustu HO
St. Jude Children's Res. Hosp., 332 North Lauderdale, Memphis, TN, 38101
Cancer; 48(10):2310-2317 1981

When 70 children with disseminated neuroblastoma were treated for 4 mo with a course of cyclophosphamide and doxorubicin (adriamycin) 35 (52%) of 68 assessable patients achieved complete remissions, 13 had partial responses, and 20 had either less than a 50% regression of tumor or evidence of tumor progression. Of the 35 children with complete responses, three received local irradiation, but for the remainder, chemotherapy alone provided rapid control of tumor growth. Drug-induced toxicity caused the hospitalization of 4 of 17 infants and 5 of 52 older children, but was related to only two of the eight deaths that occurred during treatment. Infants less than 1 yr of age were most likely to achieve a complete remission than were older children. That 52% of these patients achieved complete remissions represents a marked improvement over the 22% response rate for patients seen between 1962 and 1974. Of 35 patients with complete responses, 15 have survived, contrasted with only 4 of 33 patients achieving less than a complete response. Median survival for patients achieving a partial response was 14.4 mo, compared to 8.4 mo for patients not achieving a response. A kinetically based sequence of chemotherapy seems to produce a high rate of complete remissions in children with disseminated neuroblastoma. To consolidate this gain into curative treatment will require a continuation therapy to prevent the emergence of drug-resistant disease. (Author abstract) (21 Refs)

18. DOXORUBICIN AND CISPLATIN THERAPY IN CHILDREN WITH NEUROBLASTOMA RESISTANT TO CONVENTIONAL THERAPY: A SOUTHWEST ONCOLOGY GROUP STUDY.

Nitschke R, Starling K, Lui VK, Pullen J
Pediatrics Oncology Group, Operations Office, 4386 Lindell Blvd., St. Louis, MO, 63108
Cancer Treat Rep; 65(11/12):1105-1108 1981

Fifteen children with metastatic neuroblastoma resistant to vincristine and cyclophosphamide were treated with two drugs which were known to be effective as single drugs against neuroblastoma. The drugs were given in courses every 3 wk. Doxorubicin (50 mg/m2 iv) was given on Day 1 and cisplatin (50 mg/m2) was administered on Day 2 as an 8-hr infusion, using a forced diuretic-hydration program. Three of the 15 children achieved partial or complete remission. Three children showed improvement. The other children either did not respond to the therapy or had progressive disease. The combination of doxorubicin and cisplatin given in the sequence out-lined is no more effective than either drug given singly. The side effects of the drug combination were tolerable and were in keeping with previously described toxicity. (Author abstract) (13 Refs)

19. STATISTICAL ANALYSIS OF 457 CASES OF NEUROBLASTOCYTOMA (MEETING ABSTRACT).

Suganuma Y, Sawaguchi S, Uchino J, Watanabe I, Takahashi H, Tsuchida Y, Bessho F , Okabe I, Taguchi N, Ise T, Katsumata K, Tsunoda A, Tsunooka H, Sawada J, Ueda T, Toyosaka A, Muta H, Arima E
Dept. Surgery, Univ. Tsukuba, Inst. Clinical Medicine, Niihari-gun, Ibaraki Pref. 305, Japan
Nippon Shonigeka Gakkai Zasshi; 17(3):428 1981

The 457 patients who had neuroblastocytoma and had been seen at the 15 facilities in the Co-operation Study Group of 'Neuroblastoma' supported by a Grant-in Aid for Cancer Research from the Ministry of Health and Welfare were analyzed statistically. The data from these facilities were not significantly different from the Children's Cancer Study Group-Philadelphia data except that the survival rates for the patients under 1 yr old and for those with Stage IV-S cancer among the Japanese patients were worse. A peculiarity of the prognosis for the patients under 5 mo old and over 4 yr old was revealed. The frequency distribution by age, of the patients whose primary lesion was the adrenals (Group 3a) and that of the patients whose primary lesion was not the adrenals each showed a peculiar pattern. The incidence of the Group 3a histologic type tended to decrease with increase in the age of the patient. Of clinical tests made at the time of hospitalization, the RBC count was the most closely related to the survival period. The vanillylmandelic acid (VMA)-positive patients had a higher survival rate than the VMA-negative patients who were under 1 yr old, who had lymph node metastasis or who had primary adrenal cancer. The change in the values of five clinical tests including lactate dehydrogenase and RBC count correlated significantly with the survival period. A formula to estimate prognosis was made with 11 factors including age and histological type. The accuracy of the estimate for 141 known specimens was 94.0%, and that for 37 unknown specimens was found to be 92.1% by examination. (no Refs) (In JPN)

20. MEDULLOBLASTOMA CEREBELLUM IN CHILDREN: RETROSPECTIVE EVALUATION OF DIAGNOSTIC METHODS AND THERAPY.

Berthold R, Janka G, Lampert F
Universitats-Kinderpoliklinik, Feulgenstrasse 12, 6300 Giessen, W. Germany
Klin Paediatr; 193(3):189-197 1981

The diagnosis and treatment of 90 children (53 boys, 37 girls; 3 mo to 15.5 yr) with medulloblastoma cerebellum is described. The most common symptoms were vomiting (84%), vertigo (65%), headache (55%), and cranial nerve paralysis (55%). Seizures (4%) and increased skull circumference (3%) were rare. The most valuable diagnostic tools were computed tomography and clinical examination. The overall 5-yr survival rate was 27.1%. Children 0-5 yr old had a poorer prognosis (22% survival) as compared with children greater than 5 yr old (34%). Total tumor and palliative tumor resections gave 5-yr survival rates of 47% and 19%, respectively. Complete irradiation of the skull and spinal column produced a 5-y r survival rate of 54% while incomplete irradiation showed a 22% rate. The benefit of chemotherapy could not be determined due to the heterogeneity of the drugs and regimens used. Of the long-term survivors, 75% had a good quality of life. (45 Refs) (In GER)

21. EXTRANEURAL METASTATIC MEDULLOBLASTOMA DURING CHILDHOOD.

McComb JG, Davis RL, Isaacs H, Hoffman HJ, Quest DO
1300 North Vermont Ave., Suite 923, Los Angeles, CA, 90027
Neurosurgery; 9(5):548-551 1981

Factors that possibly correlate with extraneural metastasis (ENM) were studied in 59 children with histologically verified medulloblastoma (MB). Of these patients, 49/59 died and 34/49 were autopsied. Of the 34 autopsied patients in whom MB had arisen in the cerebellar vermis, 6 had ENM. Two of these six patients presented with neck masses before any surgical procedure. In autopsied patients with ENM, the mean age at initial diagnosis was 3.25 yr compared with 5 yr for patients without metastasis. A 3:2 male:female sex ratio ratio was reported (35:24 for the entire group and 21:13 for those autopsied). Five of six ENM patients were male. The role of surgical tumor seeding in ENM is discussed. Radiation and chemotherapy did not seem to play any role in the incidence of ENM. In the six children with ENM, the metastatic tumors were located in the neck in two cases, the ribs in three, a vertebra in one, the liver in three, and the lung in two. All six ENM patients had diffuse involvement of the entire subarachnoid space. None of the ENM patients had a desmoplastic MB; this MB type was present 6/28 of the patients without ENM. The length of survival after initial diagnosis of MB was 0-11 mo (mean 4 mo). In those patients without ENM, survival was slightly greater than 1 yr. (24 Refs)

22. INTRACRANIAL GERMINOMA: TYPICAL COMPUTER TOMOGRAPHIC APPEARANCE AND RADIATION THERAPY.

Schneider GH, Sager WD, Lepuschutz H, Hackel A, Fotter R, Tritthart H, Urban C
Univ.-Klinik fur Radiologie, A-8036 Graz, Austria
ROEFO; 135(4):422-425 1981

Diagnosis, characteristics, and treatment of intracranial germinomas are illustrated through the case histories of three patients (2 boys, 1 girl; 10-17 yr old). Emphasis is placed on the

role of computer tomography (CT) in initial diagnosis of these tumors and in monitoring the course of the disease. Two patients (15-and 17-yr-old boys) had tumors of the pineal region. Both underwent drainage of the tumor region followed by radiation therapy. In both patients, the tumors displayed complete regression after irradiation; evidence of this regression was obtained through CT examinations. These patients had no evidence of the tumors 9 and 26 mo after the end of therapy. In the remaining patient, a 10-yr-old girl with a suprasellar germinoma, the progression of the tumor was monitored by CT. The patient was fre e of pain until 14 mo after the initial examination. Her parents refused conventional therapy until 18 mo after the initial examination. At this time, the patient underwent a neurosurgical procedure; she died 20 days after surgery. The patient's tumor grew from 0.5 cc to 98 cc in a period of 18 mo. (23 Refs) (In GER)

23. CRANIOPHARYNGIOMA: EXPERIENCE WITH COMBINED OPERATIVE AND RADIOTHERAPY AND PROBLEMS OF HORMONE SUBSTITUTION.

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Dtsch Med Wochenschr; 106(45):1502-1508 1981

Craniopharyngioma, primarily a benign tumor, is associated with a variety of serious problems due to tumor localization. Access to the tumor during surgery is difficult and total resection can rarely be achieved. Growth of the remaining tumor continues and symptoms of increased intracranial pressure, further visual field loss and hormonal disturbances reappear. However, conservative operation in conjunction with radical irradiation shows good results as regards tumor regression and survival with satisfactory quality of life. Irradiation with 50 Gy on av was performed in five out of six children with remaining tumor or tumor recurrence, and satisfactory results were obtained. In all cases tumor size regressed. Endocrine disturbances could be ascertained by the combined LHRH-TRH-insulin test and the clinical picture. In nearly every case there was finally a complete lack of hormones of the pituitary-hypothalamic axis. Substitution of various hormones became necessary in all cases. Meticulous surveillance of children still undergoing developmental maturation is mandatory. All six children are well and lead a nearly normal life. (Author abstract) (25 Refs) (In GER)

24. PLASMA VASOACTIVE INTESTINAL POLYPEPTIDE AND OTHER REGULATORY PEPTIDES IN CHILDREN WITH NEUROGENIC TUMOURS.

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Eur J Pediatr; 137(2):147-150 1981

In consecutively diagnosed children with neurogenic tumors but no overt symptoms of vasoactive intestinal peptide (VIP) hypersecretion, VIP levels, changes in plasma VIP with tumor therapy, and other gastrointestinal regulatory peptide secretion by these tumors were examined. Four groups of children were studied prospectively: six children with newly diagnosed, untreated neurogenic tumors (Group A), 15 with previously diagnosed neurogenic tumors at various stages of treatment (Group B), 10 children with other tumors studied prior to treatment (Group C), and 12 otherwise normal children admitted for minor surgery (Group D). Of the six patients in Group A , three, including a child with interm ittent diarrhea, had plasma VIP levels greater than 20 picomole/liter (pmol/l), with a mean of 25.8 +-11.5 pmol/l for the group. The latter value was not significantly different from the VIP levels of the 15 Group B children (11.1 +-1.25 pmol/l). Mean plasma VIP was significantly greater (p less than 0.05) than in Group C (mean 6.3 +-1.2 pmol/l) and Group D (mean 6.9 +-1.5 pmol/l). No significant differences were apparent between the groups in plasma levels of pancreatic polypeptide, gastrin, or pancreatic glucagon. The results suggested that plasma VIP may be useful as a diagnostic marker for childhood neurogenic tumors. (21 Refs)

25. MYELOGRAPHY WITH AMIPAQUE IN INFANTS AND CHILDREN.

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Radiologe; 21(11):521-526 1981

Results of myelography with the water-soluble contrast medium Amipaque (Metrizamide: AP) in 47 children are presented. Chief indication for the procedure was suspicion of intraspinal tumor or malformation of spinal cord. AP (2.5-10 ml, concentration 170 mg I/ml) was injected with fluoroscopic control. Doses were determined individually in each case. Pathologic myelograms were obtained in 27 cases. Condition detected included meningomyelocele, lipoma, dermatoid tumor, and teratoma. Dysrhaphic disturbances in the cervical and thoracic regions in two cases were traced to spinal cord atrophy. Four extradural and two intramedullary tumors unrelated to malformations were detected. Myelograms using AP were marked by better visualization of fine detail than that obtained with gaseous or oily contrast media. AP allowed demonstration of the spinal cord, subarachnoidal space, nerve roots, and normal and pathological vasculature. Side effects were minimal in children, in contrast to previous results with adults. (37 Refs) (In GER)

26. PINEAL TUMORS IN CHILDREN AND ADOLESCENTS. TREATMENT BY CSF SHUNTING AND RADIOTHERAPY.

Abay EO, Laws ER, Grado GL, Bruckman JE, Forbes GS, Gomez MR, Scott M
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J Neurosurg; 55(6):889-895 1981

Tumors of the pineal region account for 3% to 8% of pediatric intracranial tumors. The treatment of such tumors has been in a state of flux between conservative therapy (cerebrospinal fluid shunting and radiotherapy) and direct surgical removal. A brief history and review of the literature with analysis of both approaches is given, and the Mayo Clinic's experience with conservative treatment of tumors in the pineal region in patients 20 yr and younger (27 cases) is studied and analyzed. The series comprises 21 boys and 6 girls, with an age range of 1 to 20 yr (mean 13.7 yr). Follow-up examinations are complete and range from 1 to 24 yr, with a mean follow-up period of 7.8 yr. The median survival time for these patients treated with shunt and radiotherapy is 17.7 yr. There was no mortality from treatment and complications were rare. The details of the clinical presentation, diagnostic findings, pathology, therapy, recurrence, and survival are presented. All patients under 6 yr of age (6 cases) had recurrences, 50% in other areas in the brain and 50% in the spinal cord, perhaps pointing to the need for whole-brain and spinal-axis irradiation in patients in this age group. The results of this study of the conservative

approach form a standard against which results of any other type of therapy may be compared. (Author abstract) (53 Refs)

27. PINEOBLASTOMA WITH GANGLIONIC AND GLIAL DIFFERENTIATION.

Sobel RA, Trice JE, Nielsen SL, Ellis WG
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Acta Neuropathol (Berl); 55(3):243-246 1981

Pineoblastomas were diagnosed in two male infants (18 and 20 mo). Computed tomography in Case 1 revealed hydrocephalus and a mass in the posterior third ventricle. Hydrocephalus also was seen in Case 2 along with a central enhancing lesion involving the midbrain and third ventricle. Autopsy findings are described. Diagnosis of primary pineal neoplasm was based upon the anatomic location of the bulk of tumor, and in Case 1, the modified silver carbonate method for pineal parenchymal cells. Both tumors exhibited extensive invasion and dissemination through cerebrospinal pathways. The predominant histological pattern in both was of undifferentiated small cells. Both cases exhibited ganglionic and astrocytic differentiation. While differentiation along retinoblastomatous lines, as was demonstrated in Case 2, has been described, it is uncommon. The cases illustrate the multipotential differentiating capacity of primary pineal neoplasms, heretofore considered to be characteristic of pineocytomas. (12 Refs)

28. EPIDEMIOLOGY OF PITUITARY ADENOMAS.

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Epidemiol Rev; 3:163-183 1981

Epidemiologic data, methodological problems associated with study of epidemiologic characteristics, and causal factors for pituitary adenomas are reviewed. Clinical features and treatment of pituitary adenomas are summarized. Incidence and prevalence are presented with respect to age, pituitary tumors in children and adolescents, time trends, sex differences, geographic variations, and multiple endocrine adenomatosis syndrome Type I. Exogenous risk factors presented are radiation, chemical carcinogens, estrogens, and oral contraceptives. Included are analyses of pituitary tumors as a proportion of all CNS neoplasms from selected studies, male:female ratios of incidence rates of pituitary tumors from selected reports, pituitary adenomas as a proportion of all primary CNS neoplasms from selected countries, av annual incidence rates/100,000 population for pituitary adenomas from selected countries, effects of diet, I131, and x-rays on induction of pituitary tumors in mice, incidence rate of pituitary tumors in female mice following total body neutron- and x-radiation, and frequency of pituitary adenomas in women with postpill vs non-postpill amenorrhea or amenorrhea-galactorrhea from selected reports. (154 Refs)

29. PEDIATRIC NEUROFIBROMATOSIS: REVIEW.

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Compr Ther; 7(11):66-72 1981

Pathophysiology, diagnosis, and organ-system involvement of childhood neurofibromatosis (NF) are reviewed. NF is a dynamic process, with physical findings present at birth in approx 50% of cases; 75% of affected children manifest clinical signs of NF, such as cafe au lait spots and/or neurofibromas, by age 2 yr. Regardless of factors related to the genetic defect responsible for NF, signs and symptoms increase with age. NF is basically a neural-ectodermal disorder. Between 10-20% of patients have seizures and some intellectual deficit. Astrocytoma, particularly optic glioma, is the most common intracranial tumor in NF children. Acoustic neuroma is much more common in adults. Precocious or retarded sexual development is a frequent complication of NF. However, abnormalities of sexual maturation are infrequent and are usually related to secondary involvement of target organs. Musculoskeletal involvement in NF is described. Neurofibromatous involvement of the autonomic nervous system, producing vascular disease and hypertension, is more common in NF than previously recognized. (19 Refs)

LYMPHOMAS AND LEUKEMIAS

30. LYMPHOBLASTIC LYMPHOMA: A CLINICOPATHOLOGIC STUDY OF 95 PATIENTS.

Nathwani BN, Diamond LW, Winberg CD, Kim H, Bearman RM, Glick JH, Jones SE, Gams RA, Nissen NI, Rappaport H
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Cancer; 48(11):2347-2357 1981

A retrospective clinicopathologic study of lymphoblastic lymphoma was based on 95 patients from the files of the Repository Center for Lymphoma Clinical Studies. All patients were treated according to different protocols of Cooperative Oncology groups sponsored by the NCI. The patients ranged in age from 4 to 84 yr, with a median of 30 yr. Sixty-eight patients were male and 27 were female, with respective median ages of 27 and 50 yr. The male-to-female ratio was 2.5:1. Forty patients had mediastinal masses; 30 (75%) of whom were male. The median survival of all patients was 17 mo (range 1-100 mo). To ascertain the influence of various clinical and morphological parameters on survival, univariate and multivariate statistical analyses were performed. Patients older than 30 yr of age had significantly lower incidences of mediastinal involvement ($p = 0.01$), number of mitotic figures ($p = 0.04$), and development of leukemia ($p = 0.02$) than patients younger than 30. Whereas lymphoblastic lymphoma is generally considered to be a disease of children and young adults, this study indicates that lymphoblastic lymphoma occurs in all age groups. These findings further suggest that lymphoblastic lymphoma may have a different biologic behavior in older patients. (Author abstract) (29 Refs)

31. COEXISTENCE OF MYELOID AND LYMPHOID NEOPLASTIC SUBPOPULATIONS IN CHRONIC MYELOGENOUS LEUKEMIA.

Hutchinson RJ, Rosenstock JG, Nowell PC, Finan J
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Med Pediatr Oncol; 9(5):467-472 1981

Serial cytogenetic studies have been performed on a child with Philadelphia chromosome (Ph1)-positive chronic myelogenous leukemia (CML) and correlated with clinical, morphologic, and cytochemical data in an attempt to elucidate further the natural history of leukemic progression observed in this disease. Once the initial blast crisis had occurred, two genetically different leukemic clones of cells, one presumably having arisen from the other, coexisted throughout the remainder of the patient's course. The initial clone comprised differentiating

myeloid cells, while the second clone appeared on morphologic and cytochemical grounds to be lymphoid and blastic. A dynamic equilibrium existed between these two populations of cells, with the balance altered by chemotherapy and/or other selective pressures. The leukemic progression demonstrated in this case is consistent with the concept of clonal evolution of malignant cell populations. In planning therapy, it may be necessary to consider each of these coexistent clones and their different therapeutic requirements. (Author abstract) (13 Refs)

32. EFFECT OF HYPERTRANSFUSION DURING REMISSION INDUCTION IN CHILDHOOD ACUTE LEUKEMIA. A STUDY ON THE MYELOID STEM CELL KINETICS (MEETING ABSTRACT).

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Ludwig Institute for Cancer Research, 1200 Brussels, Belgium
Exp Hematol; 9(Suppl9):89 1981

We designed a study to determine the effect of hypertransfusion on the blood and marrow colony forming units (CFU-c) of leukemic children during remission induction. Ten children with acute lymphoblastic leukemia have been randomized in pairs to normotransfused (Hb:12-14g/dl) and hypertransfused (Hb:16-18g/dl) groups. Antileukemic chemotherapy (Vincristine, Adriamycin, Prednisone) was identical in all children. We measured the CFU-c every wk during remission induction. As expected, suppression of erythropoiesis was observed in the hypertransfused group. At the time of diagnosis the bone marrow culture of all p atients yielded nearly no colonies, reflecting the inhibition of normal hemopoiesis by the leukemic process. During the first three courses of chemotherapy, the number of CFU-c remained very low in both groups. One wk after the third course of chemotherapy the number of bone marrow CFU-c began to increase in the hypertransfused group. One wk after course four the CFU-c value was significantly larger in the hypertransfused group. Circulating CFU-c were almost absent before induction chemotherapy. Their number increased after course three and was higher in the hypertransfused group and remained higher after course four. These results give a view of the kinetics of bone marrow recovery after chemotherapy and suggest that hypertransfusion increases the rate of recovery of granulopoiesis. (no Refs)

33. MARROW TRANSPLANTATION FOR CHILDREN WITH ACUTE NONLYMPHOBLASTIC LEUKEMIA IN FIRST REMISSION.

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Med Pediatr Oncol; 9(5):423-427 1981

Thirteen children between the ages of 2 and 17 yr with acute nonlymphoblastic leukemia in first remission were transplanted from HLA matched sibling donors. They were transplanted at a median of 4 mo [2-8] following diagnosis. The preparative regimen of cyclophosphamide and total body irradiation was well tolerated. Two patients died of pneumonia 66 and 94 days following transplant. One patient relapsed at 431 days, and died of leukemia at 490 days. Ten are living in remission 20-53 mo following transplantation. None are on maintenance chemotherapy, and all lead normal lives. As yet, growth is not impaired. (Author abstract) (19 Refs)

34. AUTOLOGOUS BONE MARROW TRANSPLANTATION.

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Klin Paediatr; 193(3):279-283 1981

The use of autologous bone marrow obtained from children in remission from acute lymphatic leukemia to re-establish normal hemopoiesis after conditioning for relapse with high doses of chemotherapy and radiotherapy is described. The cells removed (1.9-7.4 x 10(8)/kg) were treated to destroy any residual tumor cells and preserved at-196 C for 1-48 mo. The stem cell viability of the reference samples was 80-100% following cryopreservation. Two patients in hematological relapse received cryopreserved cells. A 7-yr-old girl, in 3rd relapse was transplanted with 1.9 x 10(8)/kg cryopreserved nuclear bone marrow cells. Complete hematopoietic recovery and a 6-mo remission were obtained. An 8-yr-old boy in 3rd relapse received 3.7 x 10(8)/kg cryopreserved (12 mo) nuclear bone marrow cells. On day 7 after transplant, the patient died of cardiac complications. At that time, an early differentiation of normal myelopoiesis and erythropoiesis and no leukemic cells were found. The results indicated that bone marrow cells collected during remission and treated with antileukemic antisera can repopulate bone marrow and effect hematopoietic regeneration. (19 Refs) (In GER)

35. AUTOLOGOUS MARROW TRANSPLANTATION IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA: ELIMINATION OF LEUKEMIC CELLS FROM THE GRAFT BY SPECIFIC ANTILEUKEMIC ANTIBODIES (MEETING ABSTRACT).

Netzel B, Rodt H, Haas RJ, Janka G, Thierfelder S
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Exp Hematol; 9(Suppl9):142 1981

Most of our patients with acute lymphoblastic leukemia (ALL) do not have HLA-identical donors for the treatment of relapsed acute leukemia by allogeneic marrow transplantation. Therefore bone marrow cells from 42 patients were collected during the remission phase of the disease, fractionated using a cell separator and stored in liquid nitrogen. Remission marrow may contain residual leukemic cells and our approach aims at eliminating in vitro clonogenic tumor cells by means of specific antibodies against cell surface antigens. Heterologous antisera were prepared against leukemic cells of common ALL (cALL) and T-ALL, both subgroups representing 95% of childhood ALL. The purified antibodies reveal specific cytotoxic activity against the target cells without interfering with normal hemopoietic stem cells. In another study autologous marrow transplantation was carried out in 3 patients with advanced relapse of cALL after failure of all other therapy. The patients received high dose combination chemotherapy (carmustine 200 mg/m2 on days-13,-12, cytosine arabinoside 200 mg/m2 on days-12 to-8, cyclophosphamide 1.8g/m2 on days-7,-6) and total-body irradiation of 1000 rad on day-1 followed by reinfusion of cryopreserved marrow cells which were pretreated with anti-cALL-globulin. The first patient died on day 7 with cardiac failure, the second patient achieved complete remission followed by a relapse 6 mo after transplantation, the third patient is still in remission. In conclusion, marrow cells collected during the remission phase of the disease and treated with antileukemic antibodies are able to restore normal hemopoiesis after supralethal conditioning of the recipient. (1 Ref)

36. NEUROLOGICAL AND NEUROPSYCHOLOGICAL FUNCTION IN THE COURSE OF AND AFTER THERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA OF CHILDHOOD.

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Klin Paediatr; 193(3):177-183 1981

The presence of abnormal peripheral and CNS function was determined in 56 patients (3-19 yr old) who had survived successful treatment or were still receiving medication for acute lymph oblastic leukemia, including skull irradiation and combination chemotherapy. Neurological, motor activity examinations, including perceptual motor scales and measures of sensory integration, were performed. General development, intelligence, and visual and auditory perception were evaluated. Cognitive style was diagnosed. Concentration and memory, some psychodiagnostic variables, and anamnestic data (somatic, cognitive, and psychological) were measured. No serious neurological defects were observed, but disabilities in postural reactions and motor coordination were evident particularly in patients with early-onset disease. Loss of tone and energy were more frequently seen during chemotherapy. Superior intelligence was observed with no evidence of minimal brain dysfunction. The level of concentration, auditory memory, and the graphomotor function were decreased with no relation to the state of therapy. The results indicated that motor coordination, concentration, memory, and graphomotor function should be monitored during the course of acute lymphoblastic leukemia. (29 Refs) (In GER)

37. DECLINES IN IQ SCORES AND COGNITIVE DYSFUNCTIONS IN CHILDREN WITH ACUTE LYMPHOCYTIC LEUKAEMIA TREATED WITH CRANIAL IRRADIATION.

Meadows AT, Massari DJ, Fergusson J, Gordon J, Littman P, Moss K
Children's Hosp. Philadelphia, 34th and Civic Center Blvd., Philadelphia, PA, 19104
Lancet; 2(8254):1015-1018 1981

Intellectual and other neuropsychological dysfunctions have been observed in survivors of childhood acute lymphocytic leukemia (ALL). The possible relationship of therapy to these dysfunctions was investigated in a prospective study of children with newly diagnosed ALL seen at the Children's Hospital of Philadelphia. They were evaluated with standardized intelligence tests during the first mo of treatment and periodically thereafter. There were two therapy schedules - one using standard drugs for induction and maintenance, the other a more intensive schedule. CNS prophylaxis (2,400 rad cranial radiation and 6 doses of intrathecal methotrexate) was given to all. Significant reductions were found in overall IQ score for the majority of children, younger patients being most affected. More extensive testing of surviving children, with and without decline in IQ all of whom were normal on the first test, revealed patterns of functional deficits and residual strengths that could not be characterized with IQ testing alone. These deficits, which could affect learning and academic performance, were not seen in six children studied yr after receiving similar chemotherapy that included intrathecal and oral methotrexate but not cranial irradiation. (Author abstract) (24 Refs)

38. COMPUTED TOMOGRAPHY BRAIN SCANS IN LONG TERM SURVIVORS OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA.

Esseltine DW, Freeman CR, Chevalier LM, Smith R, O'Gorman AM, Dube J, Whitehead VM, Nogrady MB
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Med Pediatr Oncol; 9(5):429-438 1981

There have been varying frequencies cited for the occurrence of abnormal brain CT scans in leukemic patients and conflicting evidence about the significance of these abnormalities and their relationship to sanctuary therapy. Our study of CT brain scans in 26 long survivors of acute lymphoblastic leukemia showed an overall prevalence of 35% abnormal scans. There was no statistically significant difference between the number of abnormal scans seen in patients given radiotherapy as part of their CNS prophylaxis and those receiving only intrathecal methotrexate. Because the children in each treatment group were evenly matched with respect to other treatment variables possibly relevant to the causation of abnormal brain scans, a strong case is made for more rigorous design of such studies, preferably in a prospective fashion, looking simultaneously at other parameters of brain structure and function. (Author abstract) (27 Refs)

39. DEVELOPMENT OF CHRONIC MYELOCYTIC LEUKEMIA IN THE COURSE OF MEDIASTINAL LYMPHOBLASTIC LYMPHOMA IN A CHILD: CHANGE OF SURFACE MARKERS OF BLAST CELLS (MEETING ABSTRACT).

Zinti F, Plenert W, Katenkamp D
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Exp Hematol; 9(Suppl9):81 1981

Second malignancies are being reported with increasing frequency in patients with malignant tumors treated with cytotoxic drugs and/or radiation. We recently observed development of juvenile chronic myelocytic leukemia (CML) in a 6 yr old boy with initial mediastinal lymphoblastic lymphoma. The patient was first seen in May 1976 for mediastinal mass and pleural effusion. The initial bone marrow examination did not show any involvement. A biopsy of the mediastinal mass was performed for histologic and immunologic diagnosis. Histologically, the mediastinal mass showed the features of lymphoblastic lymphoma convoluted cell type. Surface markers of lymphoma cells: E-rosettes, 95%; anti-T cell serum, 90%; acid phosphatase reaction, positive; EAC-Rosettes, 8%; SIg, 0%. There was a dramatic initial response to radiation therapy and antileukemic chemotherapy. WBC counts rose from 5000/ul, to 4400/ul, in November 1976, and to 140,000/ul in January 1978. Thrombocytopenia appeared in August 1977. The marrow was markedly hypercellular with decreased megakaryocytes and contained, in 1978, 40-50% myeloblasts. Surface markers (E+, T+) could never be found. Karyotypic analysis failed to show Ph1 chromosome and fetal Hb was elevated. (no Refs)

40. T-CELL LEUKEMIA: NOT A REAL ENTITY (MEETING ABSTRACT).

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Exp Hematol; 9(Suppl9):83 1981

T-cell leukemia is defined by lymphoblasts exhibiting E+-rosette formation. It has been described as occurring mainly in

boys of age greater than 7 yr, and initially presenting with high WBC and extensive organ infiltrates. Since May 1974, we have examined by surface marker analysis the blasts of 55 newly diagnosed patients with acute lymphocytic leukemia (ALL). E+-positive cells were found in 12 namely in bone marrow (bm) (8), in peripheral blood (pb) (2), or in both (2). The percentage of E+-cells in the bm varied between 5 and 59%, the absolute count in the pb from 0.3 to 600 x 10(9)/l. The peripheral count did not correspond well with the percentage in bm; accordingly, even with very high peripheral blast counts examination of bm is indispensable. Seven of these 12 children were boys, but only 3 of them were older than 6 yr. Six had a WBC of greater than 70x10(9)/l, 7 platelets of greater than 100x10(9)/l, and 4 were not anemic at all. Three had a mediastinal mass, 3 exhibited hepatosplenomegaly, and 1 presented with pleural effusion. Thus, prognostically unfavorable signs were more frequent than in ordinary acute lymphoblastic leukemia. All 12 children achieved complete remission. One of them died 1 mo later of varicella, one relapsed in bm after 5 and died after 11 mo, and one girl exhibited CNS leukemia after 12 mo, but is still alive and in bm remission after 17 mo. All the 9 others are in CCR: 4 less than one yr, but 5 since 14 to 70 mo, 3 of them off therapy. Our results show that E+-leukemia is not a well defined disease: there exists a broad spectrum of E+-positivity, with poor correlation to high WBC and infiltrative signs. (no Refs)

41. COMPARISON OF SOME IMMUNOLOGICAL INDICATORS IN CHILDREN WITH FAVORABLE AND UNFAVORABLE COURSE OF ACUTE LYMPHOBLASTIC LEUKEMIA.

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Cesk Pediatr; 36(10):573-575 1981

Immunological indicators were studied in six children (4 boys and 2 girls, 3-12 yr old) with acute lymphoblastic leukemia (ALL), who were in first remission for at least 5 yr, and in eight other children (4 boys and 4 girls, 3-13 yr old) with ALL, who developed recurrences during the first yr of treatment and died 3-4 yr after diagnosis. All patients received remission induction therapy with the combination of prednisone (PR) and vincristine (VCR), methotrexate intrathecally and cranial irradiation, and maintenance therapy with MTX and and 6-mercaptopurine, and cyclic reinduction treatment with PR and VCR. The IgA, IgM, and IgA levels were within the normal range initially in the patients with favorable prognosis, and declined during the first and second yr of cytostatic therapy. While the IgA and IgG levels normaliz ed from yr 3 onward, the IgM level remained low throughout the 5-yr follow-up period. The indicators of cellular immunity, assessed by skin tests and by determining the percentages of T and B lymphocytes, were within the normal range throughout the follow-up period. In the patients with unfavorable prognosis, the immunoglobulin levels were low throughout the follow-up period, and the indicator of cell-mediated immunity suggested a defect of T lymphocytes. (5 Refs) (In CZE)

42. IMPLICATIONS OF TERMINAL DEOXYNUCLEOTIDYL TRANSFERASE ACTIVITY IN VARIOUS FORMS OF CHILDHOOD LEUKEMIA.

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Klin Paediatr; 193(3):165-171 1981

Mononuclear peripheral blood cells (pB) and bone marrow (BM) specimens from 63 children with acute leukemia were examined for terminal deoxynucleotidyl transferase (TdT) activity. TdT activity was 0.2 Units (U)/10(8) cells in normal specimens (pB and BM) and 1.2-60 U/10(8) in specimens from 49/52 acute lymphoblastic leukemia patients. B-cell leukemia was diagnosed in 2/3 of the remaining patients who were devoid of TdT activity. Elevated TdT activity was observed in only 1/11 acute non-lymphoblastic leukemia patients. In one acute leukemia patient, a TdT-positive lymphoblastic cell population was observed at diagnosis; 4 wk following therapy TdT-negative myeloblasts predominated. Of nine patients who were studied in the first 3 mo of remission, elevated TdT activity (2.5 U/10(8) cells) was observed in only one. The usefulness of TdT in the classification of acute leukemia is discussed. (46 Refs) (In GER)

43. THE BFM 76/79 ACUTE LYMPHOBLASTIC LEUKEMIA THERAPY STUDY.

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Klin Paediatr; 193(3):145-154 1981

In the BFM 76/79 study, an attempt was made to improve the prognosis for children and adolescents with acute lymphoblastic leukemia at high risk for relapse [risk index (RI) greater than 3] by adaptation of therapy. The study included 158 patients. The results of BFM 76/79 and BFM 70/76 (historical control) studies were compared. All patients underwent combination chemotherapy (Protocol I). In patients with a RI less than 3, Protocol I was followed by maintenance therapy with po 6-mercaptopurine and methotrexate plus prednisone/vincristine reinduction pulses up to a total duration of 2 yr after diagnosis. High risk patients underwent 6-wk reinduction therapy (Protocol II) 4 or 20 wk after completion of Protocol II. The same maintenance therapy as above was administered for a total duration of 2.5 yr aft er diagnosis. A 70% disease-free survival was found for the entire group at 51 mo. Patients with a RI less than 3 showed no demonstrable difference in survival when compared with controls. In patients with an RI greater than 3 the prognosis was improved by 30% in the BFM 76/79 patients as compared with controls. Prognostic factors included initial peripheral blast cell count in the BFM 70/76 study, age greater than 10 yr in the BFM 76/79 study, and liver and spleen enlargement in both studies. The results indicated that intensification of therapy improves the survival of high-risk patients. (28 Refs) (In GER)

44. INTENSIFICATION OF INDUCTION THERAPY OF ACUTE LYMPHOBLASTIC LEUKEMIA WITH L-ASPARAGINASE IN CHILDREN. RESULTS OF A 5-YEAR RANDOMIZED STUDY.

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Klin Paediatr; 193(3):159-161 1981

Of 30 children with acute lymphoblastic leukemia randomized to receive induction therapy with vincristine and prednisone with or without L-asparaginase (LA), 13 of each group attained complete remission. After 5 yr, 7/13 LA-treated patients were still in their first continuous remission as compared with 2/13 who had not received LA. (11 Refs) (In GER)

45. EFFECTIVE REMISSION INDUCTION OF REFRACTORY CHILDHOOD ACUTE NONLYMPHOCYTIC LEUKEMIA BY VP-16-213 PLUS AZACITIDINE.

Look AT, Dahl GV, Kalwinsky D, Senzer N, Mason C, Rivera G
Div. Hematology-Oncology, St. Jude Children's Res. Hosp., PO Box 318, Memphis, TN, 38101
Cancer Treat Rep; 65(11/12):995-999 1981

Thirty-eight children and young adults with advanced acute nonlymphocytic leukemia (ANLL) in relapse were treated with VP-16-213 plus azacitidine (5AZ). Each patient had previously received many chemotherapeutic drugs, including anthracyclines and cytarabine. Initially, 16 patients received a 5-day course of VP-16-213 (100 mg/m2) daily x 3 days and 5AZ (150 mg/m2) daily x 2 days, repeated after 9-16 days. Since this treatment produced marrow hypoplasia and complete remission (CR) in only 1 of 16 patients, a more intensive regimen was devised: the remaining 22 patients received a course of VP-16-213 (200 mg/m2) daily x 3 days, followed by 5AZ (300 mg/m2) daily x 2 days, repeated after 1-2 days until the bone marrow became hypoplastic. After two to four courses, 18 patients had marrow hypoplasia and 10 of these achieved CR. The proportion of patients achieving CR with the higher doses was significantly greater than that with the initial doses (p less than or equal to 0.05). The toxicity also increased with the higher doses, with major problems due to prolonged pancytopenia. Supportive therapy was required for severe bleeding and infections. We conclude that the intensive treatment with VP-16-213 plus 5AZ can effectively induce remission in patients with refractory advanced acute nonlymphocytic leukemia. (Author abstract) (24 Refs)

46. COMPARISON OF THE THERAPEUTIC RESPONSE OF PATIENTS WITH CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA IN RELAPSE TO VINDESINE VERSUS VINCRISTINE IN COMBINATION WITH PREDNISONE AND L-ASPARAGINASE: A PHASE III TRIAL.

Anderson J, Krivit W, Chilcote R, Pyesmany A, Chard R, Hammond D
Children's Cancer Study Group, 1821 Griffin Ave, Los Angeles, CA, 90031
Cancer Treat Rep; 65(11/12):1015-1019 1981

One hundred and seventy-nine previously treated children with acute lymphoblastic leukemia in relapse considered not 'resistant' to vincristine (VCR) were randomly allocated to receive reinduction therapy with either vindesine (VND) or VCR, in combination with prednisone and L-asparaginase. Complete remission rates were 57% for both regimens and were significantly greater for first relapsers (69%) than for subsequent relapsers (43%). No significant difference in response rates by regimen was observed within relapse groups. Patients treated with VND experienced significantly greater hematologic toxicity. These data suggest that there is no advantage to using VND instead of VCR in standard reinduction therapy for childhood acute lymphoblastic leukemia in relapse. (Author abstract) (11 Refs)

47. LOW-DOSE ADRIAMYCIN REMISSION MAINTENANCE FOR ADVANCED ACUTE LYMPHOBLASTIC LEUKEMIA: A SOUTHWEST ONCOLOGY GROUP STUDY.

Hvizdala E, Komp D, Ragab A, Crist W, Chu JY
Pediatric Oncology Group, Operation Office, 4386 Lindell Blvd., St. Louis, MO, 63108
Med Pediatr Oncol; 9(5):477-482 1981

A low-dose maintenance schedule of adriamycin was evaluated in children with advanced acute lymphoblastic leukemia. Thirty-six evaluable patients who achieved two or more remissions were given adriamycin, 10 mg/m2/wk, as a single maintenance agent. The median duration of second remission was 17 wk, but only 5 wk for third and fourth remission. Although the therapy was not found effective in more advanced disease, the median duration of second remission approached that obtained from various multi-agent treatment schedules. We conclude that the therapeutic efficacy of this treatment schedule makes it appealing for incorporation into multi-drug combination regimens. (Author abstract) (13 Refs)

48. MUNICH ALL 77-01 STUDY OF TREATMENT OF ACUTE LYMPHOCYTIC LEUKEMIA IN CHILDHOOD.

Haas RJ, Janka G, Netzel B, Helmig M
Kinderklinik der Universitat Munchen, Munchen, W. Germany
Klin Paediatr; 193(3):137-144 1981

Over a 3-yr period 104 children with acute lymphocytic leukemia (ALL) were treated in twelve clinics. An aggressive induction therapy was administered to achieve rapid max cell reduction. Therapy used prednisone (PRED), vincristine (VCR), adriamycin (ADM), and asparaginase. After remission w as achieved, patients received methotrexate (MTX) infusion, cyclophosphamide, and cytosine arabinoside in an intensive phase. Cranial irradiation and intrathecal MTX were administered to protect the CNS. Long-term remission therapy included po 6-mercaptopurine and MTX. Half of the patients received reinduction therapy with PRED, VCR, and ADM. Complete remission was achieved in 93 cases. Two cases did not respond to treatment; two patients died during the induction phase. Relapse occurred within 4-39 mo in 27 cases. Seven patients died during remission. Probability of long-term remission after 36 was 68% for 86 patients. Reinduction therapy produced no apparent benefit. WBC count at diagnosis and T cell markers had significant prognostic value. The toxicity of the protocol requires its administration only in qualified centers. Findings subsequent to the study indicated toxicity can be reduced by administration of prophylactic antibiotics. (31 Refs) (In GER)

49. NON-HODGKIN'S LYMPHOMA IN CHILDREN: RESULTS OF TREATMENT WITH THE MODIFIED LSA2-L2 PROTOCOL.

Vecchi V, Pession A, Serra L, Rosito P, Mancini AF, Paolucci G
Section Pediatric Hematology/Oncology, Dept. Pediatrics, St. Orsola Hosp., Massarenti, 11, 40138 Bologna, Italy
Med Pediatr Oncol; 9(5):483-491 1981

From June 1976 to May 1980, 25 previously untreated children with non-Hodgkin's lymphoma (NHL) were studied and treated with a protocol modified from the one (LSA2L2) proposed by Wollner. Stage III and IV had, in addition, prophylactic treatment of the CNS with cranial irradiation (2,400 rad plus intrathecal methotrexate). The complete remission rate is 96%. Of these patients, 76% are disease free surviving after a median observation time of nearly 2 yr. The disease-free actuarial survival is 100% for 6 children with Stage I-II disease and 68% for 19 Stage III-IV children after median observation times respectively of 25+ and 19+ mo. None of the 19 high-risk patients developed CNS disease after prophylactic treatment. Mediastinal involvement and leukemic conversion at diagnosis were not unfavorable prognostic factors, but primary skeletal or sc disease and Burkitt-type histology were ominous features in patients treated by this regimen. It is concluded that good results are obtained when an aggressive multimodal and multiple drug regimen like the LSA2-L2 is coupled with CNS prophylaxis and is used assiduously to maintain complete remission during the first 12 mo of treatment. (Author abstract) (19 Refs)

OTHER SOLID TUMORS OF CHILDHOOD

50. PRE- AND POSTOPERATIVE CHANGES OF ALPHA-FETOPROTEIN AND HUMAN CHORIONIC GONADOTROPIN IN HEPATOMA OF CHILDREN.

Ikeda K, Kimura N, Suita S, Hayashida Y, Nakagawara A, Kawaoi A
Dept. Pediatric Surgery, Faculty Medicine, Kyushu Univ., 1-1, 3-chome Maedashi, Higashiku, Fukuoka 812, Japan
Z Kinderchir; 34(1):42-55 1981

Serial determinations of alpha-fetoprotein (AFP) and immunoperoxidase staining for AFP and human chorionic gonadotropin (HCG) producing cells were performed in 15 children (9 boys, 6 girls; age 4 mo to 11 yr, 5 mo) with malignant liver tumor (14 hepatoma, 1 undifferentiated sarcoma). Serial serum AFP determinations in nine patients revealed normal preoperative levels in two and levels of 150,000-2,500,000 nanog/ml in seven. Postoperative AFP changes were of three types: (1) transient decrease followed by gradual increase, as seen in patients treated by interruption of hepatic blood supply combined with chemotherapy, (2) rapid decrease in AFP level to near-normal followed soon after by increase, seen in patients with recurrence after resection, and (3) marked and consistent fall of AFP, found in patients with complete recovery after resection. In one patient with AFP and HCG producing hepatoblastoma, recurrence was associated with increase only in AFP. Immunoperoxidase staining of the resected specimen showed both AFP and HCG producing cells in a well-differentiated nest composed of distinctive cells constituting only part of the tumor. (10 Refs)

51. LIVER TUMORS.

Filler RM, Hagen J
Dept. Surgery, Hosp. for Sick Children, Toronto, Ontario M5G 1X8, Canada
Surg Clin North Am; 61(5):1209-1217 1981

Malignant and benign tumors of the liver seen in children are reviewed. The most common malignant tumors are hepatoblastoma and hepatocellular carcinoma. Vascular neoplasms are the most common benign liver tumors in children. The most frequent presenting symptom is an asymptomatic abdominal mass. Routine laboratory studies are often normal. Surgical exploration provides a definitive diagnosis. Cure is not possible without complete resection of the malignant tumor. Chemotherapy and radiotherapy can reduce the size of the primary and secondary tumor deposits, allowing for subsequent resection for cure. Benign tumors may (solid tumors) or may not (hemangioma and hemangioendothelioma) require resection. (27 Refs)

52. CARCINOMA OF THE PANCREAS IN CHILDHOOD (MEETING ABSTRACT).

Kissane JM
Department of Pathology, Washington University School of Medicine, St. Louis, MO, 63110
Newsletter Natl Pancreas Cancer Project; VI(2):30 1981

Current thinking is that carcinoma of the pancreas is an environmentally-related disease, a concept supported by the rarity of carcinoma in young individuals. A distinctive carcinoma of the pancreas (pancreatoblastoma, solid and papillary type) with hepatic metastases in a six-yr-old girl proceeded to her death four and a half yr later. Carcinoma of the pancreas in children occurs in these forms: 1) Adenocarcinoma analogous to that in adults, and two histologically and epidemiologically distinctive lesions, both of torpid malignancy and both related to pancreatic organogenesis; 2) Pancreatoblastoma, pleomorphic type, with acinar differentiation with or without squamous foci; and 3) Pancreatoblastoma, solid and papillary type, occurring conspicuously in adolescent or young adult women, often black. (no Refs)

53. CRANIOFACIAL RESECTION FOR ETHMOID CARCINOMA IN CHILDREN.

Supance JS, Seid AB
Dept. Pediatric Otolarynogology, Univ. Pittsburgh Sch. Medicine Children's Hosp. Pittsburgh, 125 De Soto St., Pittsburgh, PA, 15213
Int J Pediatr Otorhinolaryngol; 3(3):185-194 1981

A combined therapeutic approach to the treatment of primary undifferentiated carcinoma of the ethmoid sinuses (PUCES) in a 14-yr-old boy is described. The patient presented with nasal congestion and intermittent epistaxis of 3 mo duration. Clinical examination, tests, and biopsy revealed puces. The surgical treatment included osteotomies circumscribing the entire right cribriform plate, and lateral rhinotomy-medial maxillethmoidectomy. A 3 wk course of cobalt 60 radiotherapy (3000 rads) was started during the fourth postoperative wk. Subsequently, an 18 mo chemotherapeutic regimen of methotrexate, vincristine, and cyclophosphamide was started. At 24 mo postoperatively, the patient was clinically free of tumor. It is suggested that the en bloc technique of tumor resection used in nasoethmoid tumor removal in adults be adapted to the removal of similar lesions in children. The procedure is described as plausible, safe, and cosmetically acceptable for the treated of ethmoid lesions in children. (13 Refs)

54. CARCINOID TUMOR OF THE LUNG IN CHILDHOOD: REVIEW AND CASE REPORT.

Keller KM, Helwig H
Sektion Kinderpathologie, Universitat Freiburg, Albertstrasse 19, D-7800 Freiburg i. Br., W. Germany
Klin Paediatr; 193(5):355-361 1981

Reports of carcinoid tumors of the lungs in children are reviewed and a new case, that of a 13-yr-old girl, is presented. Tomography suggested carcinoid tumor of the lung, which was confirmed by bronchoscopy and surgery (lobectomy). The postoperative course was uneventful. A review of 31 cases of carcinoid tumor of the lung in children under the age of 16 yr shows that recurrent infections, cough, and hemoptysis are the most frequent symptoms. Anamnestic data, chest x-ray, tomography, and bronchoscopy are the basic diagnostic methods, leading to correct diagnosis in approx 75% of all cases. The treatment of choice is operative, usually lobectomy. Radiotherapy has palliative effect only. The 5-yr survival rate is about 80%. Carcinoid tumor no longer belongs to bronchial adenomas in the new classification. (58 Refs) (In GER)

OTHER RELATED CLINICAL STUDIES

55. BODY COMPUTED TOMOGRAPHY IN THE EVALUATION OF PEDIATRIC MALIGNANCY.

Amendola MA, Amendola BE, Hazra TA, Strash A, Tisnado J, Howells R
Dept. Radiology, Univ. Michigan Hosp., Ann Arbor, MI, 48109
CT; 5(3):219-228 1981

The use of computerized tomography (CT) in evaluation of 33 children with malignant disease is discussed. CT was never performed as the first imaging method but as a complement to conventional diagnostic procedures. Fifty-eight body scans and medical records from 17 boys and 16 girls with histologically proven extracranial malignant tumors were reviewed. Patient ages ranged from 8 mo to 18 yr. CT was performed with an Ohio-Nuclear Delta 50 FS scanner. Scanning time to produce two consecutive slices 8 mm or 13 mm in thickness was 18 sec with an x-ray tube potential of 140 kilovolt peak and a current of 28 milliamps. Nine patients with pelvic or abdominal tumor masses were studied. In seven patients CT provided additional information, primarily regarding extension of disease. In one patient with malignant ovarian teratoma and in another patient with pelvic rhabdomyosarcoma, CT was of no additional help. In 5 patients CT was used to advantage to monitor response to radiation and/or chemotherapy. The use of CT in children with retroperitoneal tumors, primary bone and soft tissue tumors, mediastinal tumors, and lung metastases, and in radiation therapy planning, is discussed. (30 Refs)

56. GALLIUM SCANNING IN INFLAMMATORY AND NEOPLASTIC CONDITIONS.

Silberstein EB
Eugene L. Saenger Radioisotope Lab., Univ. Cincinnati Medical Center, Cincinnati, OH, 45276
Clin Nucl Med; 6(10,Suppl):P63-P67 1981

The use of Ga-67 for identification of tumors and inflammatory disorders is described. One of the mechanisms proposed for Ga-67 uptake in neoplasms involves transferrin binding of the radioisotope. Granulocyte lactoferrin appears to be the major Ga-67 binding protein in areas of infection. Siderophores and ferritin may play a role in Ga localization. The optimal instrumentation for Ga scintigraphy is described. Proper interpretation of a Ga scan requires experience with normal Ga distribution and with its physiologic variants. Ga scintigraphy will not detect lesions less than 15-20 mm in diameter. For tumor detection, the sensitivity of Ga is less than 70%; it is not considered useful for the following tumors: carcinoma of the esophagus, stomach, small bowel, colon and rectum, pancreas, breast, bladder, vagina, cervix, uterus, testicle, prostate, ovary, kidney, and thyroid, as well as myeloma, melanoma, leukemia, carcinoma of the head and neck, and Wilms' tumor. Approx sensitivities of Ga-67 for pulmonary carcinoma, hepatoma, and Hodgkin's disease are 80-95%, 86-95%, and 87%, respectively. Use of Ga-67 for diagnosis of a variety of infectious and aseptic inflammatory diseases is described. (65 Refs)

57. ULTRASOUND: FIRST MANDATORY STEP IN DIAGNOSIS OF ABDOMINAL MASSES IN CHILDREN.

dell'Agnola CA, Tomaselli V
via G. Leopardi n. 19, I-20 123 Milano, Italy
Z Kinderchir; 34(1):17-24 1981

Sixteen abdominal masses in children were studied by means of ultrasonography (US), with or without x-rays; diagnostic results are correlated with clinical or operative findings. In eight patients, x-ray was employed before (4) or after (4) US, while in eight other cases only US was used. An EMI compound-scanner and 3.5 and 5 megahertz transducers were used, in both the prone and supine positions. Diagnoses included Wilms' and endodermal sinus tumors, neuroblastoma, lymphoma, retroperitoneal teratoma, urinoma, and various kidney diseases. In three cases an exploratory operation or biopsy was avoided by using US. The topographic situation of the mass in US, mass dimensions (when obtainable), and relation with surrounding organs were helpful for operation. US was a more useful guide for diagnosis of retroperitoneal masses than iv urography or iv pyelogram; retropneumoperitoneum, aortography, and computed tomography were thereby avoided. US should be the first mandatory step in diagnosis of tumors in children. (15 Refs)

58. THE FEASIBILITY OF FOOT LYMPHANGIOGRAPHY IN CHILDREN, THE INDICES OF PATHOLOGICAL EXAMINATIONS IN THE DIFFERENT NEOPLASTIC DISEASES, AND THE RADIO-HISTOLOGICAL CORRELATION.

Musumeci R
Instituto Nazionale Per Lo Studio E La Cura Dei, Tumori, Via Venezian 1, 20133 Milano, Italy
Radiol Diagn (Berl); 22(4):512-517 1981

Neoplastic disease was studied by foot lymphography in 536 children. Patients included 326 boys and 206 girls aged 3 mo-15 yr. Diseases included malignant lymphomas (49%), neuroblastomas (11.6%), and other tumors. Nonmalignant diseases accounted for 3.6% of cases. Cannulation failure occurred bilaterally in 0.7% of cases and unilaterally in 1.7% of cases. No serious complications developed. Retroperitoneal involvement was found in 8.4% of 83 patients with supradiaphragmatic Stage I or II Hodgkin's disease. Of 104 children with non-Hodgkin lymphoma, pathologic lymphograms were obtained in 5.3% of Stage I, 17.4% and of Stage II, and greater than 40% for Stages III and IV cases. Retroperitoneal diffusion of disease was found in 53.5% of patients with neuroblastoma. Rhabdomyosarcomas showed the highest incidence (38.1%) of lymphatic involvement (LI) of all soft tissues examined. LI was found in Ewing's sarcoma (11.1%), testicular carcinoma

(45.5%), dysgerminoma (41.6%), and various rare malignancies (31.6%). Lymphographic results showed 95.2% correlation with histologic diagnosis. Nonspecific hyperplasia constituted the primary interpretive problem in 36% of cases. Foot lymphography was considered mandatory when treatment planning was influenced by involvement of retroperitoneal lymph nodes. (5 Refs)

59. URINARY EXCRETION OF CYCLIC GUANOSINE 3',5'-MONOPHOSPHATE IN CHILDREN WITH MALIG NANT TUMOURS.

Puschendorf B, Grunicke H, Jentsch J, Berger H
Institut fur Medizinische Chemie und Biochemie, Universitat Innsbruck, Fritz-Pregl-Strasse 3, A-6020 Innsbruck, Austria
J Clin Chem Clin Biochem; 19(9):979-981 1981

Urinary cyclic guanosine 3',5'-monophosphate (cyclic GMP) excretion was correlated with the clinical course of malignant tumors or lymphoproliferative diseases in children 2 yr and older. Urinary cyclic GMP was measured by radioisotepe dilution test with cyclic GMP binding protein; urinary levels of creatinine were determined by the picric acid method. Determinations in children with untreated malignancies showed 69/87 cyclic GMP levels greater than 1.5 micromole/g creatinine. Treated malignant tumors showed 10/51 cyclic GMP levels greater than 1.5 micromole/g creatinine, and malignant tumors in remission showed 17/48 with levels greater than 1.5 micromole/g creatinine. Follow up studies reveal GMP excretion values near normal during remission of disease; recurrences are accompanied or preceded by increased cyclic GMP excretion. Urinary cyclic GMP levels and other chemical parameters are useful in diagnosis and therapeutic response assessment in children. No correlation with size or stage of tumors is apparent. Determination of cyclic GMP excretion in adults complements other in vitro tumor tests. (12 Refs)

60. PHARMACOKINETICS OF VINCRISTINE SULFATE IN CHILDREN.

Sethi VS, Kimball JC
Dept. Medicine, Oncology Res. Center, Bowman Gray Sch. Medicine, Wake Forest Univ., Winston-Salem, NC, 27103
Cancer Chemother Pharmacol; 6(2):111-115 1981

The pharmacokinetics of vincristine sulfate (VS: 1.31-2.02 mg/square meter (m2)) were studied following iv bolus injection in four patients (1 male, 3 female; 5-16 yr old) with cancer (1 rhabdomyosarcoma, 1 non-Hodgkin's lymphoma, and 2 acute lymphocytic leukemia). The mean half-lives of the three phases of the plasma tri-exponential decay curves alpha, beta, and gamma were 2.6, 41, and 1,531 min, respectively. The microscopic rate constants, k10, k12, k21, k13, and k31 in the three-compartment open model were 0.045, 0.088, 0.028, 0.121, and 0.0026/min, respectively. Apparent vol of the central compartment and vol of distribution at steady state were, 3.251 and 215.91, respectively. Plasma clearance of the drug, 146.18 ml/min per 1.73 m2 body surface area (BSA), was higher than the av glomerular filtration rate of 97.08 ml/min per 1.73 m2 BSA. Area under the concentration curve from zero to infinity for 2 mg/m2 BSA drug dose averaged 27,816 nanomole min but was 16,380 nanomole min for the child whose leukemia was refractory to VS. Urine drug VS concentration was 10-50x higher than the blood plasma concentration at 24 hr. Long biological half-life, large vol of distribution, and low elimination rate constant of VS from poorly p erfused tissues to plasma indicate avid tissue binding and slow release of VS from the body. (22 Refs)

61. PHARMACOKINETIC EVALUATION OF CISPLATIN IN CHILDREN WITH MALIGNANT SOLID TUMORS: A PHASE II STUDY.

Pratt CB, Hayes A, Green AA, Evans WE, Senzer N, Howarth CB, Ransom JL, Crom W
St. Jude Children's Res. Hosp., PO Box 318, Memphis, TN, 38101
Cancer Treat Rep; 65(11/12):1021-1026 1981

In a phase II trial, cisplatin was given by two randomly assigned dose schedules to 53 children with malignant solid tumors. Both schedules, 30 mg/m2/week and 90 mg/m2 every 3 weeks, were associated with drug-related toxic effects involving the renal, hematopoietic, and neuromuscular systems. Pharmacokinetic studies indicated that the initial serum half-life of total platinum was 27.6 minutes, with a terminal half-life of 44.4 hours. Significant antitumor effect was noted in patients with neuroblastoma and malignant germ cell tumors. Use of cisplatin in combination therapy for patients with these diseases is indicated. (Author abstract) (22 Refs)

62. EFFICACY OF AMIKACIN AND TICARCILLIN AS EMPIRIC THERAPY IN FEBRILE NEUTROPENIC CHILDREN WITH CANCER.

Faden HS, Deshpande GN, Grossi M, Surgalla M, Ettinger LJ, Freeman AI
Children's Hosp., 219 Bryant St., Buffalo, NY, 14222
Med Pediatr Oncol; 9(5):501-509 1981

Amikacin (600 mg/m2/day IV) and ticarcillin (12 gm/m2/day IV) were administered to 38 children with cancer, neutropenia (less than 1,000 PMN/mm3), and fever (greater than or equal to 38 C) during 46 febrile episodes. Sixty-one percent of the children were severely neutropenic (less than 200 PMN/mm3). Febrile episodes consisted of 15 documented (E coli 5, K pneumoniae and P aeruginosa 1, P aeruginosa 1, S marcescens 1, S aureus 4, S epidermidis 1, S viridans 1, adenovirus 1), 13 clinically apparent, 9 possible, and 9 doubtful infections. Efficacy of amikacin and ticarcillin was not determined in persons with gram-positive, viral, and doubtful infections. Amikacin and ticarcillin were administered from 3 to 13 days (mean 7.3 days). Peak serum concentrations of amikacin on Days 2 and 5 of treatment ranged between 13 and 35 ug/ml; trough levels remained below 2 ug/ml in 92% of the samples. Eighty-six percent of evaluable febrile episodes improved and 14% were unchanged. Among eight infections due to gram-negative enteric bacilli, six were cured (75%), and two (25%) improved temporarily. The excellent results observed in this study may be attributed, in part, to the predictably high serum concentrations of amikacin which exceeded the MICs of seven of eight gram-negative pathogens. Renal toxicity was not observed. Two children (9.5%) developed mild, transient, unilateral hearing losses. These data suggest that the combination of amikacin and ticarcillin is an effective and safe empiric antibiotic regimen in febrile children with cancer. (Author abstract) (19 Refs)

63. TRANSPLANTATION OF CRYOPRESEVED AUTOLOGOUS BONE MARROW AFTER INTENSIVE CHEMOTHERAPY AND TOTAL BODY IRRADIATION IN CHILDREN AND ADOLESCENTS WITH ADVANCED CANCER (MEETING ABSTRACT).

Baumgartner C, Bleher EA, Wagner HP, Bucher U, Deubelbeiss KA, Greiner R, Hirt A, Imbach P, Odavic R
Department of Pediatrics, University Hospitals, Inselspital, 3010 Berne, Switzerland
Exp Hematol; 9(Suppl9):139 1981

Fourteen patients less than 20 yr old with advanced cancer (5 intraabdominal non-Hodgkin's lymphomas (NHL); 3 yolk sac tumors (YST); 3 neuroblastomas and 3 Ewing sarcomas) received intensive chemotherapy (vincristine: 2 mg/m2 iv, max 2 mg, and adriamycin: 60 mg/m2 iv on day 1; cyclophosphamide: 45 mg/kg/day iv on days 2, 3, 4 and 5), total body irradiation (600 rads on day 7) and cryopreserved, autologous bone marrow. No reverse isolation but intact gammaglobulin, 0.4 g/kg iv on day 1 and trimethoprim - sulfamethoxazole po were used. All patients were digitalized, RBC and platelets were given when necessary. In patients with fever combined antimicrobial therapy was administered for 24-36 hr before granulocytes were given. In 8/12 evaluable patients hematopoiesis recovered within 3-8 wk. In 4/12 patients recovery of thrombopoiesis was incomplete. One patient with NHL died 2 days, 9 patients 2-9 mo after autologous bone marrow transplantation. The cause of death was tumor in all of the latter. No tumor was found in the former. Four patients, 3 with NHL and one with YST, are disease-free and in complete remission for 4+, 7.5+, 11+, and 19+ mo. (no Refs)

64. SLIPPED CAPITAL FEMORAL EPIPHYSIS FOLLOWING RADIATION AND CHEMOTHERAPY.

Walker SJ, Whiteside LA, McAlister WH, Silverman CL, Thomas PR (c/o Whiteside) Div. Orthopedic Surgery, Dept. Surgery, Washington Univ. Sch. Medicine, 4960 Audubon Ave., St. Louis, MO, 63110
Clin Orthop; (159):186-193 1981

Two childhood cases of slipped capital femoral epiphysis (SCFE) following radiation and chemotherapy are reported. One patient (a 2.5-yr-old boy) with malignant lymphoma received a calculated dose of 2,800 rad to both epiphyseal plates. Combined chemotherapy lasted for 20 mo. After a minor fall 5.5 yr later the patient developed a limp which was diagnosed as SCFE. The other patient (a 19-mo-old boy) had prostatic rhabdomyosarcoma and received a dose of 6,100 rad to the medial portion of both proximal femoral epiphyses. Combined chemotherapy lasted for 28 mo. At 7 yr 4 mo of age, the child developed SCFE without antecedent trauma. Review of diagnostic x-rays of 59 other patients with open proximal femoral epiphyses who had received chemotherapy and radiation treatment revealed one other patient with early widening and irregularity of the epiphyseal plate 3 mo after irradiation therapy. Toxic effects of radiati on and chemotherapy on the cells of the epiphyseal plate may be additive; in children who receive combined treatment, every effort should be made to exclude the proximal femoral epiphyses from the radiation port without compromising the efficacy of treatment. (19 Refs)

65. DOMPERIDONE AS AN ANTIEMETIC IN PAEDIATRIC ONCOLOGY.

O'Meara A, Mott MG
Children's Res. Centre, Our Lady's Hosp. for Sick Children, Crumlin. Dublin 12, Ireland
Cancer Chemother Pharmacol; 6(2):147-149 1981

The effectiveness of domperidone (DP) as an antiemetic was studied in 58 trials with 27 patients (19 boys, 8 girls; 1 yr 10 mo-13 yr old) having malignancies including leukemia, lymphoma, nephroblastoma, neuroblastoma, rhabdomyosarcoma, and Ewing's sarcoma. DP was given immediately prior to cytotoxic treatment and repeated 4 hr later. Effectiveness of DP was good in 17 trials, reasonable in 30, and poor in 11. Reasonable or good control was achieved in 14/20 patients who received 0.5 mg/kg/dose and in 32/36 who received 0.7 mg/kg/dose. Since vomiting preceded administration of cytotoxic therapy in 22 trials, the results were stratified according to the prechemotherapeutic presence or absence of vomiting. Control of emesis was significantly better in the 36 trials where vomiting did not precede chemotherapy, than in the 22 trials where it did. In the former group, the result was good in 15/16 trials but in the latter group in only 2/22 trials ($p = 0.02$). The duration of effectiveness appeared to be 3-4 hr. The principal side effect was soreness at the injection site after direct administration iv. Proper DP dilution prevented this complication. One child reported disorientation for up to 18 hr after DP administration. (7 Refs)

66. SOCIAL SUPPORT AND PARENTAL ADJUSTMENT TO PEDIATRIC CANCER.

Morrow GR, Hoagland A, Carnrike LM
Dept. Psychiatry, 300 Crittenden Boulevard, Rochester, NY, 14642
J Consult Clin Psychol; 49(5):763-765 1981

The psychosocial adjustment of 107 patents attending a national mutual-help organization convention for parents of children with cancer is reported. The parents included 37 whose child had died, 48 whose child was currently in chemotherapy treatment, and 22 whose child had completed treatment. The ratio of female:male respondents was approx 3:2 in each group. Median age was 37 yr in each group with a range of 23-58 yr. All parents were Caucasian, with a mean Hollingshead socioeconomic class of 3. Statistically significant problems in adjustment were found for each group across the spectrum of adjustment areas (vocational, social, and domestic environments, sexual and extended family relations, psychological distress and health care orientation). Parents whose child had died were found to have significantly poorer total psychosocial adjustment than either of the other groups. Parents a deceased child consistentl y demonstrated poorer adjustment than the other parental groups across all of the domains. No male versus female differences were found in any area of adjustment and specific domains of extended family relationships, domestic environment, sexual relationships, and psychological distress. Parents less than 30 were found to have significantly more impaired adjustment in each of the above domains. Different patterns of association between social support and adjustment were found among treatment groups. Parents who had a child currently in treatment showed significant positive correlations between perceived support from their spouse, relatives, primary physician, and other parents of ill children, and av amount of support and psychosocial adjustment to their child's illness. Psychosocial adjustment for the other two treatment groups correlated less frequently with perceived social support. (7 Refs)

67. RETROPERITONEAL MALIGNANT TUMORS: WILMS' TUMOR AND NEUROBLASTOMA.

Exelby PR
Div. Pediatric Surgery, Memorial Hosp., 1275 York Ave., New York, NY, 10021
Surg Clin North Am; 61(5):1219-1237 1981

Pathology, incidence, clinical considerations, and management of Wilms' tumor (WT) and of neuroblastoma (NB) are reviewed. WT is the most curable of all childhood cancers, with a 5-yr survival rate of approx 80%, while NB is much less curable. Surgical excision remains the primary mode of treatment in children with WT and NB, while chemotherapy and radiation therapy have contributed to improved survival of these children. WT is the most common malignant tumor of the kidney in children. Most (90%) children present with a large mass in the upper abdomen or abdominal enlargement. WT grows rapidly and is locally invasive; bone, liver, and brain metastases are rarely seen in WT at an early stage. In contrast, NB metastasizes to bone, liver, and brain early and rarely involves the lung. For WT, the most important diagnostic study is the iv pyelogram. Determination of histology, staging, and further management of WT is multidisciplinary. Special problems in management of WT include bilateral WT, very large or hemorrhagic tumors, and tumor in the renal vein with extension into the vena cava. NB can occur in all locations in which sympathetic ganglion tissue is located. NB presents in a variety of histologic forms and clinical presentation is varied. Over two-thirds of children with NB present with metastatic disease. Iv pyelogram is the most useful diagnostic study. No standard therapy exists for NB in the United States. Surgical resection is the most successful means of curing localized disease. (25 Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

68. DOWN SYNDROME AND ACUTE LEUKAEMIA: INCREASED RISK MAY BE DUE TO TRISOMY 21.

Rowley JD
Section Hematology/Oncology, Dept. Medicine, Univ. Chicago, Chicago, IL, 60637
Lancet; 2(8254):1020-1022 1981

Individuals with Down syndrome (DS), especially children, have an increased incidence of acute leukemia. It is suggested that this increased risk is specifically associated with the presence of an extra chromosome 21 (+21) as a constitutional abnormality. Data available from surveys of non-DS patients with acute lymphocytic leukemia (ALL) and acute non-lymphocytic leukemia (ANLL) indicate that a +21 is the most common change in leukemic cells in ALL, especially in children, and that it is one of the more common changes in ANLL. In neonatal patients with mosaicism for normal cells and +21 cells who have a transient leukemoid reaction, the blast cells involve the +21 clone; spontaneous disappearance of the leukemoid reaction parallels a decrease in +21 cells in the bone marrow. Thus, the increased risk of acute leukemia in patients with DS who have a +21 is directly related to the presence, in all cells of these individuals, of the same chromosome change that is commonly seen in the leukemic cells of children with ALL, the type of leukemia most commonly seen in DS children. This observation is analogous to that for two other constitutional chromosome abnormalities that are associated with an increased risk of a malignant tumor. A deletion of chromosome 13, including band 13q14 is associated with retinoblastoma, and a deletion of chromosome 11, including band 11p13 is associated with aniridia/Wilms tumor syndrome. The nature of the genes affected by these various chromosome aberrations is unknown. (Author abstract) (20 Refs)

* U. S. GOVERNMENT PRINTING OFFICE: 1982—361-847/114

AUTHOR INDEX WITH CITATION NUMBERS

Abay EO 26
Abe M 8
Amendola BE 55
Amendola MA 55
Anderson J 46
Andresen J 2
Appeli R 5
Arima E 19
Baumgartner C 63
Bearman RM 30
Berger H 59
Beron G 36
Berthold R 20
Bessho F 19
Bleher EA 63
Bloom SR 24
Bolkenius M 5
Bramswig J 43
Brandeis WE 5
Breu H 43
Bruckman JE 26
Bucher U 63
Callihan TR 1
Carnrike LM 66
Chard R 46
Chevalier LM 38
Chilcote R 46
Chu JY 47
Cornu G 32
Crist W 47
Crom W 61
Dahl GV 45
Daum R 5
Davis RL 21
De Montpellier 32
De Vries JA 11
Dell'Agnola CA 57
Deshpande GN 62
Deubelbeiss KA 63
Diamond LW 30
Dube J 38
Durnov LA 9
Duval/Arnould B 12
Ebener U 42
Ellis WG 27
Esseltine DW 38
Ettinger LJ 62
Evans WE 61
Exelby PR 67
Fabianova J 41
Faden HS 62
Fergusson J 37
Fienman NL 29
Filler RM 51
Finan J 31
Firlit CF 10
Forbes GS 26
Fotter R 22
Freeman AI 62
Freeman CR 38
Fujino T 7
Furste HO 44
Gadner H 43
Gams RA 30
Georgi G 5
Glick JH 30
Gold EB 28
Gomez MR 26
Gomyo I 7
Gordon J 37
Grado GL 26
Green AA 17
Green AA 61
Greiner R 63
Grossi M 62
Grunicke H 59
Gutjahr P 36
Haas H 23
Haas RJ 34
Haas RJ 35
Haas RJ 48
Hackel A 22
Hagen J 51
Hammond D 46
Hayashida Y 50
Hayes A 61
Hayes FA 17
Hazra TA 55
Helmig M 48
Helwig H 54
Henze G 42
Henze G 43
Hinderfeld L 42
Hirt A 63
Hitzig WH 40
Hoagland A 66
Hoffman HJ 21
Howarth CB 61
Howells R 55
Hustu HO 17
Hutchinson RJ 31
Huttenberger H 23
Hvizdala E 47
Ikeda K 50
Imbach P 63
Isaacs H 21
Ise T 19
Janka G 20
Janka G 35
Janka G 48
Jentsch J 59
Joller PW 40
Jones SE 30
Kadoba K 7
Kalwinsky D 45
Kaplan WE 10
Katenkamp D 39
Kato T 8
Katsumata K 19
Kawaoi A 50
Kawata H 7
Kelleher JF 12
Keller KM 54
Kezic J 4
Kim H 30
Kim S 7
Kimball JC 60
Kimura N 50
Kissane JM 52
Komp D 47
Koops HS 11
Kornhuber B 42
Krivit W 46
Kuroda O 7
Kutzner J 3
Lampert F 20
Landbeck G 16
Langermann HJ 43
Laws ER 26
Lepuschutz H 22
Littman P 37
Long RG 24
Look AT 45
Ludwig R 5
Lui VK 18
Magill HL 1
Mancini AF 49
Mason C 45
Massari DJ 37
Matsukuma T 8
Mayr U 23
McAlister WH 64
McComb JG 21
Meadows AT 37
Misugi K 6
Miyamoto K 7
Morrow GR 66
Moss K 37
Mott MG 65
Mrackova E 41
Musumeci R 58
Muta H 19
Nagahara S 7
Nakagawara A 50
Nakamura S 7
Nathwani BN 30
Netzel B 34
Netzel B 35
Netzel B 48
Nielsen SL 27
Nishi T 6
Nishida T 8
Nishimura H 8
Nissen NI 30
Nitschke R 18
Nogrady MB 38
Nowell PC 31
O'Gorman AM 38
O'Meara A 65
Odavic R 63
Ogura S 7
Okabe I 19
Oldhoff J 11
Oppermann HC 5
Opric M 4
Paolucci G 49
Parvey LS 1
Pession A 49

Plenert W. 39
Pluss HJ. 40
Pratt CB. 61
Pritchard J. 24
Pullen J. 18
Puschendorf B. 59
Pyesmany A. 46
Quest DO. 21
Ragab A. 47
Rai A. 7
Ransom JL. 61
Rapoaport H. 30
Remagen W. 14
Resch R. 23
Riehm H. 43
Ritter J. 42
Rivera G. 45
Rodt H. 34
Rodt H. 35
Rosenstock JG. 31
Rosito P. 49
Rowley JD. 68
Sager WD. 22
Salzer-Kuntschi. 14
Sanders JE. 33
Sauvegrain J. 13
Savinova VF. 9
Sawada J. 19
Sawaguchi S. 19
Schabbert S. 5
Schellong G. 43
Schmidt RC. 25
Schneider GH. 22
Schwarz S. 23
Scott M. 26
Seattle Marrow. 33
Seid AB. 53
Senzer N. 45
Senzer N. 61
Serra L. 49
Sethi VS. 60
Silberstein EB. 56
Silverman CL. 64
Smith R. 38
Sobel RA. 27
Starling K. 18
Steenskov V. 2
Strash A. 55
Suganuma Y. 19
Suita S. 50
Supance JS. 53
Surgalla M. 62
Symann M. 32
Taguchi N. 19
Takahashi H. 19
Thierfelder S. 35
Thomas ED. 33
Thomas PR. 64
Thomas WJ. 12
Tiedemann K. 24
Tisnado J. 55
Tomaselli V. 57
Toyosaka A. 19
Trice JE. 27
Tritthart H. 22
Tsuchida Y. 19
Tsunawaki A. 8
Tsunoda A. 19
Tsunoda A. 6
Tsunooka H. 19
Twerdy K. 23
Uchino J. 19
Ueda T. 19
Urban C. 22
Vacher H. 13
Vacher-Lavenu M. 13
Vecchi V. 49
Vogelsang H. 25
Wagner HP. 63
Walker SJ. 64
Walther B. 36
Warner RM. 1
Watanabe I. 19
Wehinger H. 44
Welte K. 42
Welte K. 43
Whitehead VM. 38
Whiteside LA. 64
Winberg CD. 30
Winkelmann W. 15
Winkler K. 16
Wobbes T. 11
Wurster K. 5
Yakushiji M. 8
Yamada R. 6
Yamamoto H. 6
Yamamoto Y. 7
Zavazal V. 41
Zintl F. 39
Zolotova VI. 9

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-3
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 4-7
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 8-16
- NEUROBLASTOMAS AND CNS TUMORS..... 17-22
- LYMPHOMAS AND LEUKEMIAS..... 23-38
- OTHER SOLID TUMORS OF CHILDHOOD..... 39
- OTHER RELATED CLINICAL STUDIES..... 40-42
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 43-46

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
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HE 20. 3173/2:

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. BOTRYOID RHABDOMYOSARCOMA OF THE BILIARY TRACT. REPORT OF FIVE PATIENTS WITH ULTRASTRUCTURAL OBSERVATIONS AND LITERATURE REVIEW.

Lack EE, Perez-Atayde AR, Schuster SR
Dept. Pathology, Children's Hosp. Medical Center, 300 Longwood Ave., Boston, MA, 02115
Am J Surg Pathol; 5(7):643-652 1981

Clinical manifestations and ultrastructure of botryoid rhabdomyosarcoma of the biliary tract in five children (3 boys, 2 girls; aged 1.5-5.5 yr) are reported. Tumors were located in the cystic duct (1), extrahepatic bile ducts (2), and common bile duct (2); duration of symptoms (obstructive jaundice, nausea, vomiting, and fever) ranged from 2 wk to 4 mo. All children underwent exploratory laparotomy. Three patients with inoperable tumors died within 4 wk to 6 mo after laparotomy. One child was subjected to hepatectomy and modified Whipple's resection (the patient died 2 wk postoperatively), and one child underwent liver resection and postoperative radiotherapy and chemotherapy (the patient was free of disease 14 mo after the treatment). Electron microscope examination of tumor cells showed marked variation in the degree of differentiation. Marked anaplasia of cells within the cambium layer hindered the classification. (21 Refs)

2. EXTREMITY LESIONS IN THE INTERGROUP RHABDOMYOSARCOMA STUDY (IRS-I): A PRELIMINARY REPORT.

Hays DM, Soule EH, Lawrence W, Gehan EA, Maurer HM, Donaldson M, Raney RB, Tefft M, Crist WM, Hammond D, Heyn R, Lindberg R, Newton W, Ragab AH, Ruymann T, Sutow WW
Childrens Hosp. Los Angeles, 4605 Sunset Blvd., Los Angeles, CA, 90027
Cancer; 49(1):1-8 1982

The sites in which rhabdomyosarcoma occurs most frequently in children and young adults are the head and neck, genitourinary tract, and the extremities. Among these three sites, tumors of the extremities have been associated with the highest relapse rate and lowest survival rate in patients treated by protocols of the Intergroup Rhabdomyosarcoma Study (IRS). In five of six patients treated by primary extremity amputation, tumor recurred. Seven of 21 patients in Clinical Group I (completely resected tumors), and 9 of 27 patients in Clinical Group II (patients with gross tumor excision but positive lymph nodes, 'microscopic residual' disease, or extension beyond the muscle of origin) had relapses. Thirteen of 18 patients (72%) in Clinical Group III (gross residual disease) responded to a chemotherapy-radiotherapy regimen, but 10 have subsequently had relapses; and 13 of 18 are dead. Of 30 patients in Clinical Group IV (disseminated disease on entry), 15 initially responded to chemotherapy, but 25 of 30 are dead. The period of surveillance is 2 1/2 to 7 1/2 yr, with a mean of 46.3 mo at last examination. Increased rates of relapse were seen in patients with extremity tumors, as opposed to tumors in other sites, irrespective of the specific IRS chemotherapy-radiotherapy regimen employed. In Clinical Group I (nonamputation), relapse rates by histologic subtype of rhabdomyosarcoma were alveolar subtype, 5/8; embryonal, 1/7; and all other subtypes, 1/6. In Clinical Group II, relapse rates were alveolar, 6/12; embryonal, 5/11; all other subtypes, 3/10. (Author abstract) (26 Refs)

3. LIPOSARCOMA IN CHILDREN.

Sztaba R, Judycki W
Klinika Chirurgii Dziecieccj, ul. Swierczewskiego 1-6, 80-803 Gdansk, Poland
Pediatr Pol; 56(6):655-661 1981

Liposarcoma was diagnosed in an 8-mo-old infant and four 8-11-yr-old children. T he tumors were located on a finger, in the interscapular region, left buttock, in pericystic region, and in the retroperitoneal cavity, respectively. Pleomorphic liposarcoma was diagnosed in two cases, myxomatous liposarcoma in two, and partially sclerotic myxomatous liposarcoma in one. All patients were subjected to surgery, one also to chemotherapy, and another to chemotherapy and telecobalt therapy. One patient died after 3 yr despite surgery, chemotherapy and radiotherapy. The four other patients were in good condition 2-5 yr after treatment. Surgery is the basic therapeutic method for liposarcoma, and radiotherapy and cytostatic therapy can be useful in patients with metastases and inoperable tumors. (16 Refs) (In POL)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

4. MESOBLASTIC NEPHROMA: A MALIGNANT TUMOR WITH A LOW DEGREE OF MALIGNITY.

Willnow U
Klinik und Poliklinik fur Kinderchirurgie, Karl-Marx-Universitat, Bereich Medizin, Oststr. 21-25, DDR-7050 Leipzig, E. Germany
Z Urol Nephrol; 74(10):749-754 1981

A case history of mesoblastic nephroma (MN) occurring in a newborn infant is reported, and aspects of MN are reviewed. A palpable mass was detected in the left mid-abdominal region at birth. Infusion urography indicated an almost nonfunctional left kidney. During transabdominal surgery 20 days after birth, a tumor involving the medial and cranial lobes of the left kidney was found. No metastases were present. Ureteronephrectomy was performed. Three wk after surgery digestive disruption and vomiting occurred. Relaparotomy revealed severely necrotic enterocolitis. The infant died of sepsis nine days after relaparotomy. Histological examination of the tumor showed fiber-forming cells resembling fibroblasts or leiomyoblasts, as well as primitive glomeruli and undifferentiated tubules. Studies of the kinetics of tumor cells showed a 3H-thymidine marking index of 5.8%, DNA synthesis time of 18.2 hr, mean generation time of 141.1 hr, growth fraction of 0.28, and potential doubling time of 16.4 days, all indicative of a low grade of malignity. MN was thus distinct from rapidly growing, highly malignant Wilm's tumors. MN occurs almost exclusively in newborn and young infants. Prognosis after ureteronephrectomy is better the younger the infant is at treatment. (18 Refs) (In GER)

5. GRANULOSA-THECA CELL TUMORS IN PREMENARCHAL GIRLS. A CLINICAL AND PATHOLOGIC STUDY OF TEN CASES (MEETING ABSTRACT).

Lack EE, Perez-Atayde AR, Goldstein DP, Crigler JF, Vawter GF
Department of Pathology, Children's Hospital Medical Center, Boston, MA, 02115
Am J Clin Pathol; 76(3):353 1981

Granulosa-theca cell tumors (GTCT) in the premenarch accounted for 4% of childhood ovarian tumors treated from 1928 through 1979. The av age of the ten girls at diagnosis was 5 yr (range 11 mo to 12 1/2 yr) and precocious 'pseudopuberty' was the most common presentation. GTCT were solitary (five right, five left) with an av diameter of 12.1 cm. Histology showed a diffuse or macrofollicular pattern with prominent luteinization; Call-Exner bodies and folded ('coffee bean') nuclei were inconspicuous. Ultrastructure showed abundant smooth endoplasmic reticulum and mitochondria with tubulo-vesicular cristae; prolactin, estradiol and testosterone were detected in one GTCT using immunologic technics. The av follow-up was 21 yr; nine girls were followed in excess of ten yr. Salpingo-oophorectomy was curative despite tumor spillage in two. Invasive breast cancer occurred in two long-term survivors. The prognosis of these GTCT appears favorable but further study is needed to completely define their biologic potential; the possible association with subsequent breast cancer merits further investigation as well. (no Refs)

6. OVARIAN NEOPLASMS IN CHI DREN.

Iwaszkiewicz K, Modrzejewska B, Cieslak H
I Klinika Chirurgii Dzieci, Instytyt Pediatrii AM, ul. Marszalkowska 24, 00-576 Warsaw, Poland
Pediatr Pol; 56(6):663-669 1981

Ovarian tumors were diagnosed in 25 (1-15-yr-old girls) during a 30-yr period. Malignant tumors were found in eight patients: they included four teratomas, two dysgerminomas, one embryonal carcinoma and one chorioepithelioma. All patients with malignant tumors were 7-12 yr old. Benign tumors were found in 17 cases; they included 12 teratomas, 2 hemangiomas, 2 corpus luteum cysts, and 1 granulosa-cell tumor. All eight patient with malignant tumors were submitted to surgery; metastases were found during surgery in 6/8 cases. During the mean follow-up period of 13 yr, only one patient, with unilateral dysgerminoma, was alive at the time of reporting after surgery and radiotherapy. All 17 patients treated for benign tumors were alive at the time of reporting; two of them gave birth to healthy babies. (17 Refs) (In POL)

7. OVARIAN CYSTS AND TUMORS IN CHILDHOOD.

Ziszi K, Denes J, Orley J
I. Sebeszeti Osztaly, Fov. Apathy Istvan Gyermekkorhaz es Rendolointezet, Budapest, Hungary
Orv Hetil; 122(39):2415-2417 1981

Ovarian tumors were diagnosed in 25 children during the period 1963-1980. They included 21 benign tumors (5 follicular cysts, 4 dermoids and benign teratomas, and 1 papillary cystadenoma) and 4 malignant tumors (2 malignant teratomas and 2 dysgerminomas). The two patients with malignant teratoma (6 and 13 yr old, respectively) were operated on for acute abdomen due to torsion and hemorrhage with necrosis. Despite radical surgery, postoperative radiotherapy and chemotherapy, and reoperation for recurrence, both patients died after 0.5 and 1 yr. Dysgerminoma was found in two 4-and 12-yr-old patients showing no signs of pubertas praecox. Both patients were symptom-free 1 yr after radical surgery and x-ray th erapy. (13 Refs) (In HUN)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

8. ROLE OF LUNG IRRADIATION IN THE ADJUVANT TREATMENT OF OSTEOSARCOMA.

van der Schueren E, Breur K
Div. Oncology, Dept. Radiotherapy, Academisch Ziekenhuis St. Rafael, Capucienenvoer 35, B-3000 Leuven, Belgium
Recent Results Cancer Res; 80:98-102 1982

Adjuvant lung irradiation (ALI) was tested in patients with osteosarcoma. All patients received treatment for the primary tumor which consisted of surgery, radiotherapy (RT), or RT with delayed surgery. Of a total of 86 patients, 44 controls received no further treatment; 42 patients received ALI (20 Gray, delivered in 10 sessions over 2 wk). The 5-yr survival rates (5SR) were 43% for patients treated with ALI and 28% for controls, with a significance at the 6% level. Among patients less than 17 yr old, 5SR were 48% after ALI and 28% for controls. In one treatment center the 5SR for ALI and control groups were 33% and 27%, respectively; among other centers the rates were 50% and 30%, respectively. Pediatric 5SR were as high as 61% after ALI. Survival of patients not receiving ALI was higher than for similarly treated patients in other recent studies. Variations in results among treatment centers, as well as the small number of patients studied, underscore the importance of multicenter studies of large patient populations for confirmation of results. Confirmation of the reported results would mean ALI must be combined with other agents, since the radiation dose cannot be increased. (15 Refs)

9. AUTORADIOGRAPHIC IN VITRO STUDY OF THE CELL KINETICS OF OSTEOGENIC SARCOMAS AND EWING'S SARCOMAS IN CHILDREN.

Willnow U
Center Child's Medicine, Clinic Pediatric Surgery, Karl Marx Univ., Oststr. 21-25, 7050 Leipzig, E. Germany
Arch Geschwulstforsch; 52(1):9-16 1982

Cellular kinetic parameters of osteogenic sarcoma (OGS) and Ewing's sarcoma (ES) were studied by autoradiographic methods in cultures of tumors from children. Non-necrotic tissue samples were obtained from marginal tumor regions of nine OGS (6 primary tumors and 3 pulmonary metastases) and three ES. Rapid growth of OGS was indicated by a [3H]thymidine-labeling index (TLI) of 4.9-36.1% (av 13.8%), DNA synthesis time (DST) of 8.1-18.2 hr (av 12.2 hr), mean cell cycle time (MCCT) of 10.1-124.6 hr (av 58.0 hr), and av mitosis time (MT) of 1.1 hr. The OGS growth fraction was estimated at 0.5, with a tumor doubling time (TDT) of 17.6-260.9 hr (av 114.5 hr). One ES showed rapid growth; two ES showed moderate growth. ES parameters included TLI of 11.3, 8.3, and 6.8%, TDT of 2.6, 5.8, and 6.5 days, MCCT of 44.2, 89.2, and 101.3 hr, av DST of 14.4 hr, and av MT of 1.9 hr. Cell kinetic therapy indices were 0.19-1.0 for OGS and 0.26-0.36 for ES, indicating good to excellent sensitivity to cytostatic agents. (46 Refs)

10. RESULTS OBTAINED IN TREATMENT OF EWING'S SARCOMA.

Garcia Garcia A, Estupina Albacar S, Sanchez Santos ME, Petrement Aldairurriaga C
Departamiento de Radiologia y Medicina Nuclear, Ciudad Sanitaria La Paz, Madrid, Spain
Oncologia; 6(5):23-26 1981

Of 34 patients (8 mo to 28 yr old; 24 male, 10 female) with Ewing's sarcoma (ES), 17 had localized, and 17 advanced disease with metastases (Me). Nine patients had ES in the large, and 8 in the short bones. All patients received Co-60 radiotherapy (RT) for a total of 6,000 rads in 6 wk; lung Me received 2,500 rads and bone Me 3,000 to 3,500 rads. Of the patients with advanced ES, 98% died and only one patient lived more than 2 yr; av survival was 12 mo. Of the patients with localized ES, 47% died, and 47% were alive; a 5 yr survival was achieved by 35% of the total. In one case (7-yr-old boy), 19 mo after diagnosis of ES in the right tibia, multiple lung Me appeared and were treated with RT; 10 mo later he had a local lung relapse that was resected. He was well 28 mo after diagnosis. Of the localized ES patients, 41% had Me (mostly lung) on the av 13 mo after terminating the RT. Prognosis for patients with ES is better, if the primary site is located in distal, rather than proximal, bones. (9 Refs) (In SPA)

11. EWING'S SARCOMA: TREATMENT WITH HIGH-DOSE RADIATION AND ADJUVANT CHEMOTHERAPY.

Goldman A
Royal Marsden Hosp., Fulham Road, London SW3, England
Recent Results Cancer Res; 80:115-119 1982

Twenty-nine patients with pathologically proven Ewing's sarcoma without overt metastases at diagnosis were treated with a protocol designed by The Royal Marsden and St Bartholomew's Hospital Children's Solid Tumor Group. They received megavoltage radiotherapy to the involved bone and adjuvant chemotherapy with a combination of four cytotoxic drugs. Comparison with a historical control group of 19 patients treated with local surgery or radiotherapy but no initial chemotherapy shows a significant improvement in survival for the study group ($p = 0.022$). Thirteen patients have failed on the protocol: 8 at the original site, 4 in other bones and only 1 in the lungs. Sixteen patients remain alive and disease free, 11 of these for over 33 mo. The treatment regimen was moderately toxic but there were no treatment-related deaths. These results confirm that an improved survival time and, hopefully, cure rate can be expected by treating Ewing's tumor with high-dose megavoltage radiation and combination chemotherapy. Future goals must be better control of primary lesions and eradication of micrometastases in other bones. (Author abstract) (7 Refs)

12. ADJUVANT CHEMOTHERAPY IN EWING'S SARCOMA PATIENTS.

Gasparini M, Lombardi F
Div. Clinical Oncology F, Istituto Nazionale Tumori, Via Venezian 1, Milano, Italy
Recent Results Cancer Res; 80:120-123 1982

At the Istituto Nazionale Tumori of Milan 60 patients with clinically localized Ewing's sarcoma were treated during 1965-1978 according to three different protocols. From 1965-1971, 18 patients received almost exclusively local therapy and 17 of 18 (94%) relapsed in a median time of 6 mo. From 1971-1978 adjuvant chemotherapy according to two different drug schedules was employed after radiotherapy. Twenty-five of 42 (59%) are surviving and relapse-free at this time (follow-up 20-101 mo). (Author abstract) (5 Refs)

13. EWING'S SARCOMA: 5-YEAR SURVIVAL UNDER ADJUVANT CHEMOTHERAPY.

Le Mevel BP
Centre Rene Gaunducheau, Quai Moncousu, F-44035 Nantes Cedex, France
Recent Results Cancer Res; 80:128-133 1982

The results at 5 yr of an adjuvant chemotherapy trial in primary Ewing's sarcoma, started in 1973, are presented. Twenty-three eligible patients were treated with radiotherapy (60 Gy) to the tumor site and given polychemotherapy either using the E3 protocol (12 patients) or the E76 protocol (11 patients). Overall survival at 5 yr was 37%, with 34% disease-free survival. There was no significant difference between the two chemotherapy groups. Only three local relapses and one major orthopedic failure were reported. Among the distal relapses, no metastases to the brain have been observed. These results are encouraging and show a clear improvement over the classical survival rate. However, further improvement is necessary and may be obtained by using new active drugs, as well as earlier and probably more aggressive cyclic chemotherapy. But primary surgical amputation and prophylactic CNS irradiation are not indicated for treatment of primary Ewing's sarcoma. (Author abstract) (12 Refs)

14. POLYCHEMOTHERAPY WITH THE USE OF CARMINOMYCIN IN COMBINED TREATMENT OF CHILDREN WITH ADVANCED EWING'S SARCOMA.

Bizer VA, Timukhina VN
Res. Inst. Medical Radiology, Obninsk, USSR
Antibiotiki; 26(10):774-776 1981

Efficacy of combined treatment was evaluated in 85 children (aged 3-16 yr) with disseminated Ewing's sarcoma. Group 1 (21 children) received monochemotherapy with sarcolysin (SL: 1-2 mg/kg, total dose 90-200 mg) or with cyclophosphamide (CP: 20-30 mg/kg, total dose 3,000-6,000 mg). Group 2 (26 children) received monochemotherapy with SL or CP and radiotherapy (2,200-3,500 rads to lung metastases or 4,000-4,500 rads to bone metastases). Group 3 (38 children) received radiotherapy and polychemotherapy with carminomycin (6 mg/square meter), methotrexate, CP, dactinomycin, and vincristine. The 3-yr survival rates in Groups 2 and 3 were 3.8% and 38.5%, respectively. All patients in Group 1 died within 3 yr after monochemotherapy. (13 Refs) (In RUS)

15. LOCALIZED EWING SARCOMA: RESULTS OF INTEGRATED THERAPY AND ANALYSIS OF FAILURES.

Gasparini M, Lombardi F, Gianni C, Fossati-Bellani F
Dept. Pediatrics, Istituto Nazionale per lo Studio e la Cura dei Tumori, Via Venezian, 1-20133 Milan, Italy
Eur J Cancer Clin Oncol; 17(11):1205-1209 1981

From 1974 to 1978 thirty-four consecutive patients with clinically localized Ewing sarcoma were treated with local therapy (radiotherapy: 33 patients; surgery: 1 patient), followed by adjuvant chemotherapy (adriamycin, vincristine, cyclophosphamide). All patients underwent a complete clinical remission. Actuarial relapse-free survival is 53% at 4 yr. Reasons of first treatment failure were: local recurrence in 2 (6%) and distant metastases in 12 (35%) patients. The worst prognosis was related to the location of the primary tumor in the axial skeleton and to the administration of inadequate radiotherapy. It is suggested that incomplete eradication of the primary tumor may be responsible for metastatic seeding before, or without, clinical evidence of local reactivation at the primary site. (Author abstract) (24 Refs)

16. EARLY RESULTS OF COMBINED MODALITY THERAPY OF PATIENTS WITH EWING'S SARCOMA.

Hossfeld DK, Seeber S, Siemers E, Schmidt CG, Scherer E
Abteilung fur Onkologie und Hamatologie, Medizinische Universitatsklinik, Martinistrasse 52, D-2000 Hamburg 20, W. Germany
Recent Results Cancer Res; 80:124-127 1982

Fourteen patients with localized Ewing's sarcoma were treated with radiation therapy to the involved bone and systemic chemotherapy. Nine patients remained free of disease for a median follow-up period of 3 yr. The actuarial 5-yr disease-free survival rate is 60%. (Author abstract) (5 Refs)

NEUROBLASTOMAS AND CNS TUMORS

17. FRACTIONATED TOTAL BODY IRRADIATION FOR METASTATIC NEUROBLASTOMA.

Kun LE, Casper JT, Kline RW, Piaskowski VD
Dept. Radiology, Section Therapeutic Radiology, Medical Coll. Wisconsin, 8700 West Wisconsin Ave., Milwaukee, WI, 53226
Int J Radiat Oncol Biol Phys; 7(11):1599-1602 1981

Twelve children over 1 yr old with metastatic neuroblastoma involving the bone marrow and/or bone were treated with induction chemotherapy (cyclophosphamide and adriamycin, 6 courses in 4 mo), then those exhibiting complete clinical response were eligible for laparotomy and subsequent total body irradiation (TBI: 5x/w, total cumulative doses of 100-120 rad in 10-12 fractions over 12-25 days). Those with gross residual disease also received irradiation to residual tumor sites (2,400 rad in 16 fractions given concurrently with TBI). No maintenance therapy was given. Six children were evaluated following TBI: two girls, four boys; aged 1 2/12-6 yr. Five had adrenal primaries, one had massive retroperitoneal disease without an identifiable primary. Five patients had multiple sites of bony metastases. All six children demonstrated disease progression from 2-16 mo after cessation of chemotherapy, four between 2 and 7 mo. Total survival following diagnosis ranged from 9 to 47+ mo. All patients received additional chemotherapy after documented disease progression. Three additional patients received 80, 100, and 120 rad, respectively, in 10-rad fractions after disease progression following chemotherapy: no objective regression in clinical or radiographic disease was observed, although brief subjective responses of less than 4 wk were noted. Except for one patient who demonstrated a platelet nadir of 4,000, no patient demonstrated clinically significant hematologic toxicity. Because these results were not significantly different from those obtained with chemotherapy and surgery without TBI, the use of fractionated TBI for these children is not recommended. (14 Refs)

18. EFFECT OF PTC ON NEUROBLASTOMA (MEETING ABSTRACT).

De Bernardi B, Pastore G, Carli M, Ceci A, Mancini A, Tamaro P
No affiliation given
Third NCI-EORTC Symposium on New Drugs in Cancer Therapy, October 15-17, 1981, Brussels, Belgium European Organization for Research on Treatment of Cancer; A64 1981

PTC (peptichemio) was utilized as initial therapy following diagnosis in 80 children with non-localized neuroblastoma. Of the 67 evaluable patients (21 stage III, 41 stage IV and 5 stage IV-S), 51 had measurable lesions allowing to evaluate PTC activity; objective tumor responses to the drug were recorded in 45 of these 51 cases (88.2%): 5/5 stage III, 37/41 stage IV, 3.5 stage IV-S. Complete remissions (CRs) were obtained in 7 patients (13.7%), partial remissions (PRs) in 32 (62.7%), OIs in 6 (11.8%). Four patients (7.8%) had either no tumor change, or tumor progression. There have been two early drug-related deaths (3.9%). Stage III and IV patients responding to PTC were then treated by irradiation + vincristine (VCR), followed by cycles of a combination of adriamycin (ADR), VCR, CYT. Stage IV-S patients received no further therapy. Thirteen of 21 stage III (61.9%), 5 of 41 stage IV (12.2%) and 4 of 5 stage IV-S (80%) are presently alive from 19 to 48 mo (median 27 mo). PTC is an effective agent in advanced neuroblastoma. However, the results of this report do not indicate that its addition to a 'standard' treatment, at least in the schedule adopted in this protocol, has improved the final outcome of children with non-localized disease. (no Refs)

19. ASYMPTOMATIC ADRENAL NEUROBLASTOMAS AND CONGENITAL MALFORMATIONS IN THE INFANT.

Barbet JP, Mace B, Vinh L, Denni J
Service d'Anatomie Pathologique, Unite 43, Hopital Saint-Vincent-de-Paul, 74, avenue Denfert-Rochereau, 75674 Paris, France
Ann Pediatr (Paris); 28(10):727-732 1981

Five cases of neonatal asymptomatic adrenal neuroblastomas (NBs) are reported. In 4/5 patients, acute respiratory or cardiac distress occurred immediately after birth and death followed within 3 days. Autopsies and histological examination revealed asymptomatic adrenal NB without metastases. The fifth child was a 4-mo-old girl who suddenly developed respiratory distress and died of a congenital cardiovascular malformation. These in situ asymptomatic adrenal NB were in adrenals that were not enlarged and the findings of the study confirm previous reports that the in situ NB are by far the most common type found in infants. Further investigation of the spontaneous regression of NB in infants is needed. (18 Refs) (In FRE)

20. ABSCOPAL EFFECT IN A CASE OF NEUROBLASTOMA.

Roul RK, Sudarsanam D, Singh SP, Bhaktaviziam A
Dept. Radiation Therapy, Christian Medical Coll. and Hosp., Vellore-632 004, India
Indian J Radiol; 35(4):299-302 1981

An abscopal effect was observed in a 7-yr-old boy who received radiotherapy for a chest-wall metastasis from a primary neuroblastoma of the left adrenal gland. The patient received 3,600 rads exclusively to the chest-wall lesion during a 4-wk period. After therapy, the mass had regressed 50%, and the patient's breathing improved. In addition, the left retroperitoneal mass began to regress after 10 days of treatment and could not be palpated when radiotherapy was complete; iv pyelography showed no evidence of the adrenal tumor after therapy. The authors suggest that regression of the unirradiated primary tumor may have been related to production of tumor-specific antibodies or to a specific lymphocyte response. (14 Refs)

21. IMPROVED RELAPSE-FREE SURVIVAL IN MEDULLOBLASTOMA UTILIZING MODERN TECHNIQUES.

Norris DG, Bruce DA, Byrd RL, Schut L, Littman P, Bilaniuk LT, Zimmerman RA, Capp R, Hoffman HJ, Wilson CB
Cleveland Clinic Foundation, 9500 Euclid Ave., Cleveland, OH, 44106
Neurosurgery; 9(6):661-664 1981

The impact of microsurgery and computed tomography (CT) was studied in two groups of patients with medulloblas-

toma treated by the same surgical and radiotherapy (RT) groups. Group 1 was treated before, and Group 2, after December 1974, when microsurgery was introduced. Groups 1 and 2 each contained 11 evaluable patients of both sexes; av ages at diagnosis were 7 yr, 2 mo and 10.0 yr, respectively. Range of ages was 2 yr, 10 mo to 12 yr, 10 mo (Group 2) and 3 yr, 5 mo to 19 yr, 1 mo (Group 2). The dose of RT was similar in both groups. Six children in Group 1 and seven in Group 2 received chemotherapy, with the same agents used for same period of time. Surgical procedures in Group 1 consisted of biopsy (1), subtotal resection (7), total resection (3), compared to 0, 0, and 11, respectively, in Group 2. Mean relapse free survival of 50 mo in Group 2 was significantly greater (p less than or equal to 0.001) than the 42 mo in Group 1. Efforts to minimize tumor burden by total resection did not increase postoperative morbidity or mortality. Relative impact of CT scan, total resection, and increased focus for RT on improved outcome are discussed. (9 Refs)

22. TUMOR OF THE PINEAL BODY REGION IN CHILDREN.

Bai G, Luo S, Li D
Dept. of Neurosurgery, Xuanwu Hosp., Beijing, People's Republic of China
Zhonghua Waike Zazhi; 19(4):216-219 1981

Tumors of the pineal body region are relatively rare, representing 1-2% of intracranial tumors reported in the literature. Diagnosis and treatment are described for 48 cases (37 males, 11 females; aged 1.5-15 yr) seen between 1955 and 1978; they represented 4.4% of all intracranial tumors seen during the same period. The most common tumors observed in this series included 24 cases of teratoma (50%), 9 cases of pinealoma, 2 cases of pineal blastoma, and 9 cases of glioma. Major presenting symptoms included intracranial hypertension (100%), disturbance of upper movement of the eyeball (62.5%) and cerebellar signs (25%). The most useful diagnostic technic used was cerebral ventriculography which not only could determine the position of the tumor but also could sometimes determine its nature. Surgery was the treatment of choice. Different surgical technics are discussed. (7 Refs) (In CHI)

LYMPHOMAS AND LEUKEMIAS

23. IN VITRO GROWTH OF LYMPHOMA COLONIES FROM CHILDREN WITH NON-HODGKIN'S LYMPHOMA.

Smith SD, Wood GW, Fried P, Lowman JT
Dept. Pediatrics, Univ. Kansas Medical Center, Kansas City, KS, 66103
Cancer; 48(12):2612-2623 1981

Growth in vitro of malignant lymphoid cells has been previously reported, but those studies involved direct establishment of cell lines from the patients' cells. In the present study, an in vitro system for both primary growth and passage of malignant lymphoblastic colony-forming cells (ML-CFC) was established, and for the first time, colony-forming cells from non-Hodgkin's lymphoma patients were cultured, and cell lines were established from individual colonies. Malignant lymphoid colonies grew from 9 of 16 (56%) bone marrow aspirates, which were histologically involved with lymphoma and from 5 of 29 (17%) morphologically normal bone marrow samples. ML-CFCs grew concomitantly with myeloid and monocytic CFCs and were distinguishable by their morphologic characteristics on agar, cytochemical staining characteristics, and cell surface markers. Successful passage of ML-CFCs was accomplished in five patients, and 10 distinct cell lines (6 null cell, 3 B cell, and 1 T cell) were established. This agar assay system provides an opportunity to study malignant lymphoma cell growth both as a primary colony and as a cell line established from a primary colony. (Author abstract) (44 Refs)

24. COMPARISON OF HLA PHENOTYPES IN LONG-TERM SURVIVORS WITH ACUTE LYMPHOBLASTIC LEU KEMIA TREATED WITH IMMUNOTHERAPY VERSUS CHEMOTHERAPY.

Tursz T, Hors J, Lipinski M, Amiel JL, Mathe G
Laboratoire d'Immunologie Clinique, Institut Gustave-Roussy, F-94800 Villejuif, France
Recent Results Cancer Res; 80:26-28 1982

Human leukocytic antigen (HLA) phenotypes were studied in children with acute lymphoblastic leukemia (ALL) who were alive without relapse greater than 8 yr after initiation of long-term chemotherapy (CT) or short-term chemotherapy followed by immunotherapy (IT). HLA determinations were of no prognostic value for CT patients. HLA AW33 and B17 antigens were increased significantly among IT patients, indicating prognostic value for HLA typing. (5 Refs)

25. PITUITARY FUNCTION AND GROWTH OF CHILDREN UNDER LEUKEMIA TREATMENT.

Schuler D, Gacs G, Revesz T, Koos R, Keleti J
II. Gyermekklinika, Semmelweis Orvostudomanyi Egyetem, Tuzolto u. 7-9, H-1094 Budapest, Hungary
Monatsschr Kinderheilkd; 128(12):773-775 1981

The effect of cranial irradiation (total dose 2,400 or 4,800 rads, individual dose 150 wk within 3 wk) on the pituitary function of 40 children (2-14 yr old) with acute lymphoblastic leukemia was studied 1-3 yr after radiotherapy. Corticosteroids were not administered. The plasma growth hormone level, determined after arginine stimulation in 15 children, was normal in 13. The basal thyroid stimulating hormone level was normal in all cases, but its rise following administration of thyrotropin-releasing hormone was subnormal in 13/15 cases. The patients with subnormal growth hormone levels and subnormal thyroid stimulating hormone levels were not identical. The increase in the urinary excretion of ketogenic steroids under the effect of metyrapone was normal in all cases. The growth, monitored in 40 children, was normal in all cases compared with that of healthy controls. (11 Refs) (In GER)

26. ENDOCRINE ASSESSMENT IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA.

Fisher JN, Aur RJ
Dept. Medicine, Univ. Tennessee Center for Health Sciences, 951 Court Ave., Memphis, TN. 38163
Cancer; 49(1):145-151 1982

Ten children ages 7 to 18 (8 girls, 2 boys) with acute lymphoblastic leukemia (ALL) were studied. Remission was induced with prednisone, vincristine, and asparaginase followed by preventive central nervous system treatment with 2,400 rads cobalt-60 cranial irradiation plus intrathecal methotrexate. At the time of study all patients had been on continuation chemotherapy with two to four drugs for 2 to 2 1/2 years. Three patients were on mercaptopurine and methotrexate, one was on cyclophosphamide in addition, and six were on these drugs

plus arabinosyl cytosine. Linear growth and bone age for height was appropriate in all. Tests included oral glucose (OGTT) and tolbutamide (TOLB) tolerance tests, ACTH infusion, thyroid function and measurement of noctural growth hormone (IRGH), and cortisol. All patients tested (9/10) had a normal OGTT. Peak glucose and insulin (IRI) values occurred at 30 minutes in 8/9 subjects (IRI range 24-143 uU/dl). IRGH responses to sleep, TOLB and following OGTT were greater than 5 ng/ml in at least one test in all, with 5/10 patients responding above this level in all three tests. Diurnal variation of cortisol was observed in all patients (8/10) studied. Thyroid function and response to ACTH was normal in all patients. No consistent changes were observed in gonadotropins. It is concluded from these results that hypothalamic pituitary function appeared to be intact despite 2,400 rads of cobalt-60 cranial radiation and ongoing chemotherapy for ALL in 10 patients observed. Long-term studies are required to exclude late endocrine complications in such children. (Author abstract) (25 Refs)

27. THYMIC GALLIUM-67 LOCALIZATION IN PEDIATRIC PATIENTS ON CHEMOTHERAPY: CONCISE COMMUNICATION.

Donahue DM, Leonard JC, Basmadjian GP, Nitschke RM, Hinkle GH, Ice RD, Wilson DA, Tunell WP
(c/o Basmadjian)Coll. Pharmacy, Univ. Oklahoma, Oklahoma City Campus, Oklahoma City, OK, 73190
J Nucl Med; 22(12):1043-1048 1981

Localization of Ga-67 in the thymus has been reported to occur in children. In our control group of 87 patients, 15% of children under 5 yr and 11% of children over 5 yr demonstrated thymic localization. In contrast, in our study group of seven children with acute lymphocytic leukemia or malignant lymphoma, lymphocytic diffuse, treated on a modified non-Hodgkin's lymphoma protocol, Sloan-Kettering LSA2-L2 thymic localization occurred during treatment in five of the seven. We conclude that increased thymic gallium localization in children under chemotherapy for a known malignancy may reflect increased activity of thymic medullary epithelial cells and regeneration of thymic lymphocytes during recovery from involution induced by certain chemotherapeutic agents. (Author abstract) (24 Refs)

28. LYMPHOCYTE AROMATIC HYDROCARBON RESPONSIVENESS IN ACUTE LEUKEMIA OF CHILDHOOD.

Blumer JL, Dunn R, Esterhay MD, Yamashita TS, Gross S
Div. Pediatric Pharmacology, Dept. Pediatrics, Case Western Reserve Univ., Cleveland, OH, 44106
Blood; 58(6):1081-1088 1981

Aryl hydrocarbon hydroxylase (AHH) activity and inducibility were examined in mitogen-stimulated cultured lymphocytes from children with acute leukemia in remission, with nonleukemic malignancies, and with no family or personal history of malignant disease. Neither morphological differences nor differences in mitogen responsiveness were observed among the three sources of cells studied. Levels of constitutive and dibenzanthracene-induced AHH activity were found to be similar among the three groups by analysis of variance. However, when results were analyzed in terms of inducibility ratios, i t was found that cells from leukemic children were significantly less inducible (p less than 0.005) than cells from unaffected children or children with nonleukemic malignancies. The reason for this difference became apparent when statistical criteria were employed for the phenotypic separation of individuals who were highly aromatic hydrocarbon responsive and minimally responsive. A significantly larger proportion (p less than 0.001) of leukemic children than unaffected children or children with nonleukemic malignancy were found to be minimally aromatic hydrocarbon responsive. Moreover, in patients with acute lymphoblastic leukemia relapsing while on therapy, longer durations of the first remission were correlated (r = 0.63, p less than 0.05) with the highly inducible AHH phenotype. (Author abstract) (47 Refs)

29. SYNERGISTIC ACTION OF TWO POLYAMINE ANTIMETABOLITES, DIFLUOROMETHYL ORNITHINE AND METHYLGLYOXAL BIS (GUANAYLHYDRAZONE), LEADS TO RAPID THERAPEUTIC RESPONSE IN ADVANCED CHILDHOOD LEUKEMIA (MEETING ABSTRACT).

Janne J, Siimes M, Seppanen P, Alhonen-Hongisto L
Department of Biochemistry and Children's Hospital, University of Helsinki, SF-00170 Helsinki 17, Finland
Third NCI-EORTC Symposium on New Drugs in Cancer Therapy, October 15-17, 1981, Brussels, Belgium European Organization for Research on Treatment of Cancer; :A76 1981

The discovery of potent and specific inhibitors of the biosynthesis of putrescine, spermidine and spermine has shown that undisturbed accumulation of the polyamines is a prerequisite for animal cell proliferation to occur. Methylglyoxal bis (guanylhydrazone) (MGBG; methyl-GAG; mitoguazone), an inhibitor of spermidine and spermine biosynthesis, and difluoromethyl ornithine (DFMO), a potent and specific inhibitor of putrescine formation, are currently the most widely used polyamine antimetabolites. These two compounds, in addition to intervening different sites of the polyamine biosynthetic pathway, also show a unique drug interaction: a prior exposure of cultured tumor cells to DFMO produced a strikingly enhanced uptake of subsequently added MGBG. This 'priming concept', appears to be also clinically applicable. Sequential administration of DMO and MGBG produced a rapid therapeutic response in five children with advanced leukemia refractory to conventional treatments. The synergism between the action of these compounds was obviously based upon a greatly increased uptake of MGBG produced by a preceding treatment with DFMO as verified by actual determinations of MGBG in the circulating leukemia cells. There was no apparent potentiation of the toxicity of MGBG by the prior DFMO treatment. The antimetabolites of polyamines may not be specific to transformed cells, yet they show a peculiar preference to rapidly dividing cells as regards their growth-inhibitory action. This may make them especially suitable for the treatment of life-threatening conditions such as blast crisis in leukemia. (no Refs)

30. PHASE I STUDY ON 5-AZA-2'-DEOXYCYTIDINE IN CHILDREN WITH ACUTE LEUKEMIA.

Rivard GE, Momparler RL, Demers J, Benoit P, Raymond R, Lin KT, Momparler LF
Div. Hematologie-Oncologie, Hopital Sainte-Justine, Montreal, Quebec, Canada H3T 1C5
Leuk Res; 5(6):453-462 1981

A Phase I study of 5-aza-2'-deoxycytidine (5-AZA-CdR) was conducted in children with advanced leukemias refractory to conventional therapy. The starting dose of 5-AZA-CdR was 0.75 mg/kg, administered as a 12-hr iv infusion. The dose was increased stepwise until a plasma concentration was obtained that produced significant anti-leukemia activity; this was followed by stepwise increases in duration of infusion. At a dose of 20 mg/kg, the 5-AZA-CdR produced no observable toxic-

ity. At doses of 24 and 30 mg/kg, mild nausea, vomiting, and diarrhea were noted. Alopecia occurred in some patients receiving two or more treatments with 36-50. 5-AZA-CdR at 36 or 80 mg/kg and administered as a 40-hr infusion produced marked granulocytopenia and thrombocytopenia in children with solid tumors. Hematopoietic toxicity was difficult to determine in the leukemia patients because of the presence of greater than 90 leukemic blasts in the marrow. At low doses of the 5-AZA-CdR (0.75-17 mg/kg), the antileukemic effect was short-lived, while at higher doses (24 mg/kg, 24-hr infusion or 30 mg/kg, 30-hr infusion), the drug produced longer reduction of leukemic blasts. The 5-AZA-CdR produced a very potent antileukemic effect in some patients when the dose was increased to 36 mg/kg and the infusion time was increased to 36 hr. A clearing of meningeal leukemia was observed in two patients who received 5-AZA-CdR at a dose of 44 mg/kg for 44 hr or 80 mg/kg for 40 hr. The kinetics of normal bone marrow recovery after treatment of two leukemic patients with 5-AZA-CdR at 36 mg/kg over 36 hr are described. In vitro drug sensitivity data on leukemic cells of blood and marrow at different times during treatment of patients with the 5-AZA-CdR showed resistance in some of the patients. Concentrations of 5-AZA-CdR in plasma and cerebral spinal fluid were measured. (23 Refs)

31. EXPLORATION WITH CT BEFORE AND AFTER CRANIAL IRRADIATION IN ALL AND NHL.

Kutzner J, Kretzschmar K, Gutjahr P

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Strahlentherapie; 157(3):164-167 1981

In 72 children (44 boys and 28 girls, 1 to 14 yr old) with acute lymphocytic leukemia (ALL) or malignant non-Hodgkin lymphomas (NHL), computed tomography was used for exploration of the brain before and up to 8 yr after the radiation therapy. Thus 67 normal and 25 pathological findings resulte d; nevertheless, in 10 of the children examined prior to radiation therapy, computed tomography had already shown pathological findings. (Author abstract) (28 Refs) (In GER)

32. 7. POOR-PROGNOSIS ACUTE LYMPHOBLASTIC LEUKEMIAS.

Weil M, Jacquillat C, Auclerc MF, Schaison G, Chastang G, Bernard J

Unite de Chimiotherapie, Institute de Recherches sur les Maladies du Sang, Hopital Saint-Louis, 2 Place du Docteur Fournier, F-75475 Paris Cedex 10, France

Recent Results Cancer Res; 80:36-41 1982

Burkitt's-type leukemias have specific cytologic, immunologic, and cytogenetic characteristics. Initial symptomatology frequently includes abdominal tumors and initial CNS involvement. Despite intensive treatment including high-dose cyclophosphamide, prognosis remains poor in most patients because of failures to achieve complete remission (CR) or because of early relapses, especially CNS relapses. Class III acute lymphoblastic leukemia in children is defined by the presence of two or more unfavorable parameters and recent progress has been achieved by intensive therapy. Cox's multifactorial analysis allows improved discrimination. A phase I protocol for increased-risk leukemias, including testis preventive irradiation and monthly reinductions without continuous maintenance for the first 6 mo of CR, seems promising. (Author abstract) (10 Refs)

33. INTRACRANIAL BLEEDING DURING THERAPY WITH L-ASPARAGINASE IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA.

Urban C, Sager WD

Dept. Pediatrics, University Hosp., Auenbruggerplatz, A-8036 Graz, Austria

Eur J Pediatr; 137(3):323-327 1981

Two patients developed clinical features of intracranial bleeding, which were confirmed by computerized axial tomograms, during their induction therapy for acute lymphocytic leukemia. Coagulation studies showed clotting abnormalities including severe hypofibrinogenemia. These findings most probably were related to the effect of L-asparaginase which was part of the treatment protocol. Central nervous system leukemia, intrathecal chemotherapy, cranial irradiation, extreme leukocytosis, or thrombopenia at the time of diagnosis or day of stroke did not appear to be predisposing factors in these cases. (Author abstract) (30 Refs)

34. DURAL SINUS THROMBOSIS IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

Steinherz PG, Miller LP, Ghavimi F, Allen JC, Miller DR

Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021

JAMA; 246(24):2837-2839 1981

Dural sinus thrombosis developed in two children with acute lymphoblastic leukemia during induction treatment with vincristine sulfate, prednisone, and asparaginase. Headache, nausea, emesis, and lethargy were the presenting signs. The diagnosis was confirmed by arteriography. The cause is presumed to be secondary to hypercoagulability due to asparaginase-induced antithrombin III deficiency. The patients received anticoagulation therapy and recovered completely. Only two of the six reported patients without heparinization survived. (Author abstract) (26 Refs)

35. TESTICULAR LEUKEMIA: INCIDENCE AND MANAGEMENT RESULTS.

Byrd RL, Chatten J, Raney RB, Littman P, Oakhill A, Gale G

(c/o Raney) Div. Oncology, Children's Hosp. Philadelphia, 34th St. and Civic Center Blvd., Philadelphia, PA, 19104

Med Pediatr Oncol; 9(5):493-500 1981

Diagnosis and treatment of testicular leukemia in an 8-yr-old male is described. The patient presented with foot pain and was found to have diffuse spotty lymphadenopathy but no hepatosplenomegaly. Leukemia was diagnosed. Induction therapy with vincristine, prednisone, L-asparaginase, and methotrexate was administered. After 28 days, remission was observed. Radiotherapy was administered along with maintenance chemotherapy. Eleven mo after diagnosis, both testes were found to be enlarged. Wedge biopsy of both testes revealed leukemic infiltration. Chemotherapy and radiotherapy were administered. Seven mo after testicular relapse, the patient had a bone marrow relapse; the patient died 8 mo later with disseminated leukemia. Testicular pathology is described. The results of treatment of 16 male children who developed testicular leukemia out of 173 with acute lymphoblastic leukemia are presented. Patient characteristics are described. The role of prophylactic testicular radiotherapy in leukemia and options for management of future patients are discussed. (17 Refs)

36. PRIAPISM IN CHILDREN WITH LEUKEMIA.

Steinhardt GF, Steinhardt E
Dept. Urology, Univ. Kentucky Medical Center, Lexington, KY
Urology; 18(6):604-606 1981

A case of priapism in a child with chronic granulocytic leukemia is presented, and the English literature is reviewed. While common in adult leukemia patients, priapism is rare in children with these neoplasms. Sludging of blood in the corpora cavernosa is almost universally accepted as the mechanism behind the development of painful and persistent erection in these patients. Permanent fibrosis of the cavernosal tissue may not occur in leukemic priapism as it does in other types. Erectile potency is not a point of major concern in these children since their prognosis is uniformly poor, especially in those with a cancer other than chronic granulocytic leukemia. Therapy directed toward the priapism is almost uniformly unsuccessful. However, the painful erection will resolve spontaneously in a matter of days with proper treatment of the leukemic process. (Author abstract) (16 Refs)

37. RADIOLOGICAL FINDINGS IN CHILDREN WITH ABDOMINAL LYMPHOSARCOMA.

Florczak-Mikicinska E, Koczynski A
Instytut Matki i Dziecka, ul. Kasprzaka 17a, 01-211 Warsaw, Poland
Pol Przegl Radiol; 45(4):227-232 1981

The radiological signs of abdominal lymphosarcoma and other non-Hodgkin's lymphoma in 40 children (30 boys and 10 girls, 0-16 yr old) are described. Plain abdominal radiograms were taken in all cases, and contrast examinations were performed in some cases. The plain abdominal radiograms contains signs suggestive of non-Hodgkin's lymphoma in most cases. The most frequent radiological signs were presence of fluid in the peritoneal cavity (28 cases), separation of the intestinal loops (26) and reduced amount of gas in the gastrointestinal tract (12). Contrast examination of the gastrointestinal tract usually permitted correct diagnosis. (16 Refs) (In POL)

38. DIAGNOSTIC LAPAROTOMY IN CHILDREN UNDER 12 WITH HODGKIN'S DISEASE.

Lobo F, Vargas G, Garcia I, Jimenez E, Jimenez R
Hospital Nacional de Ninos 'Dr. Carlos Saenz Herrera', San Jose, Costa Rica
Bol Med Hosp Infant Mex; 38(4):639-647 1981

Twenty-eight children (3-12 yr old, 25 male and 3 female) with Hodgkin's disease were evaluated clinically (history, physical examination, blood and bone marrow analyses, tests of hepatic and renal function, thorax radiography, lymphography, descending pyelogram, and biopsy of peripheral lymph nodes). Clinically, 60% of patients were Stage I or II and 40% were Stage III or IV. All patients received laparotomy and splenectomy (LS); recovery was rapid without complications or mortality. Anatomopathologic (AP) diagnosis confirmed the clinical staging in 18 cases. The other patients were reassigned to more advanced stages. After LS, 10 patients suffered 12 viral infections and 9 bacterial infections. All patients (11) in AP Stage I or II are in complete remission after completion of treatment; mean survival time (MST) is 32 mo. For the six patients in AP Stage IIIA, MST is 63 mo and two have died. For 11 patients in AP Stage IIIB or IV, MST is 57 mo and 3 have died. Dissemination of the disease and immunologic state should be evaluated periodically. (24 Refs) (In SPA)

OTHER SOLID TUMORS OF CHILDHOOD

39. PEDIATRIC PROBLEMS ARISING FROM SURGERY OF THE PANCREAS IN CHILDHOOD.

Hecker WC, Kraeft H, Stroh M
Kinderchirurgische Klinik, Universitats-Kinderklinik im Dr. von Haunerschen Kinderspital, Lindwurmstrasse 4, D-8000 Munich 2, W. Germany
Monatsschr Kinderheilkd; 128(12):758-763 1981

Surgery for pancreatic diseases in childhood are reviewed, and personal case reports are presented. Tumors of the pancreas in children are rare. The benign pancreatic tumors include cyst papillary adenoma, congenital cysts, islet-cell adenoma, and nesidioblastosis. Seven cases of cyst papillary adenoma are known from the literature. Whipple's operation was performed on a 14-yr-old girl with cyst papillary adenoma of the pancreas; she was symptom-free 3 yr later. The malignant pancreatic tumors in ch ildren include adenocarcinoma, islet-cell carcinoma and rhabdomyosarcoma. Sonography, angiography, retrograde cholangiopancreaticography and computed are useful in the diagnosis of insulinoma in children. If children with symptoms of insulinoma do not show any tumor, surgery is indicated only after failure of conservative treatment. If intraoperatively no tumor is found, subtotal (85%) pancreatectomy should be performed. (29 Refs) (In GER)

OTHER RELATED CLINICAL STUDIES

40. THE CLINICAL LABORATORY DIAGNOSIS OF NEUROBLASTOMA AND PHEOCHROMOCYTOMA.

Kincaid HL
Children's Hosp. Natl. Medical Center, Washington, DC
Clin Proc Child Hosp Natl Med Cent; 37(6):368-376 1981

Clinical application of assay techniques for measuring catecholamines to the detection of neuroblastoma and pheochromocytoma in children is discussed. The higher concentrations of catecholamines in pheochromocytomas indicated that tumor tyrosine hydroxylase is less sensitive to product inhibition than that in the normal tissue. Human neuroblastoma cells were found to contain the enzymes required for catecholamine synthesis, but the relative absence of storage granules was shown to result in rapid degradation of the newly synthesized epinephrine (E) and norepinephrine (NE) to vanilmandelic acid (VMA), as well as in the increase of dopamine (DA) production. The use of high performance liquid chromatography (HPLC) and radioenzymatic assay (REA) provides for an increased detection rate of catecholamines and a variety of metabolic intermediates. HPLC separates E, NE, and DA. The REA approach also offers improved sensitivity and specificity compared with fluorometric assays. (15 Refs)

41. MITOXANTRONE (M) IN CHILDREN (C) WITH ADVANCED MALIGNANT DISEASE (MEETING ABSTRACT).

Vietti T, Nix W, Kim T, Holcenberg J, Kamen B, Murray E, Cappiello V
No affiliation given
Third NCI-EORTC Symposium on New Drugs in Cancer Therapy, October 15-17, 1981, Brussels, Belgium European Organization for Research on Treatment of Cancer; :A37 1981

The toxicity and therapeutic efficacy of M given as an infusion over 30 min every 3 wk has been evaluated in 18 C with acute lymphatic leukemia (ALL), in 14 with acute non-lymphatic leukemia (ANLL), and in 21 C with solid tumors. The starting dose in C was 8 mg/M2 of M given as an IV infusion every three wk. Prior to entry on study, C must have evidenced recovery from all prior therapy, have normal renal and hepatic function, a WBC greater than or equal to 3500/ul, and platelet count less than or equal to 125,000/ul if they did not have a compromised marrow secondary to replacement by malignant cells. Three or more children were entered at each dose level. The max tolerated dose (MTD) for C with solid tumors is 18 mg/M2. Myelosuppression, the dose limiting toxicity, was of short duration and at the 18 mg/M2 dose level has not required a reduction in dose. The MTD in C with ALL and ANLL has not been reached although 1 child with ANLL had moderately severe stomatitis, fever, and alopecia at the 33 mg/M2 dose level. Systolic time intervals increased in 2 C. Mild nausea, vomiting, and occasional stomatitis were reported at all dose levels. One early death was noted at 10 mg/M2 and one at 18 mg/M2. One of 11 C with neuroblastoma had a complete response (CR) and one of 5 C with Ewing's Sarcoma had a partial response (PR). Of the 14 with AML, 2 had a CR, 5 had a PR, and 3 had clearing of the blasts from the peripheral blood. Of the 18 evaluable C with ALL, 1 had a PR and 2 had clearing of the blasts from the peripheral blood. The MTD of 18 mg/M2 in children with solid tumors is well above the purported MTD of 12 mg/M2 in adults and reemphasizes the necessity of phase I studies in children to establish the MTD. (no Refs)

42. THE PROBLEMS OF COMBINED RADIOTHERAPY AND CHEMOTHERAPY IN CHILDHOOD CANCER (MEETING ABSTRACT).

Deakin DP
Christie Hospital and Holt Radium Institute, Manchester M20 9BX, England
Br J Radiol; 56(644):798 1981

A knowledge of the tolerance of normal tissues is the foundation upon which any radiotherapy dosage system is built. A body of clinical and experimental data has now grown up indicating that normal-tissue reactions to radiation are altered-often increased-by concurrent drug administration. In Manchester, acute radiation toxicity has been seen when radiotherapy has been combined with actinomycin-D for the treatment of nephroblastoma in childhood, for example: Moist skin desquamation and confluent mucosal fibrin at 1200 centiGray (cGY) in four days; Acute liver necrosis at 3000 cGy in four wk; Acute pneumonitis at 2000 cGy in three wk; Acute renal failure at 2000 cGy in three wk and at 1500 cGy in three wk. It is now clear that actinomycin-D and adriamycin should not be given during the course of a radiotherapy treatment. Even when these drugs are given later a settling radiation reaction may be re-induced. Severe acute reactions may settle but lead to later impairment of structure and function of an organ. Some specific late effects are seen with combinations of radiotherapy and chemotherapy, however. Study of children treated in Manchester on various protocols for acute lymphoblastic leukemia reveals cerebral calcification in 35%. The incidence varies with the different protocols but is highest when cranial irradiation and iv methotrexate are combined. Second malignancies are seen in some children cured of cancer by surgery or radiotherapy and the incidence of these may be increased by the addition of chemotherapy. Careful, long-term follow-up and documentation are mandatory for all children treated for cancer. (no Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

43. MANAGEMENT OF THE ADOLESCENT GIRL EXPOSED IN UTERO TO DES.

Gerbie MV
Dept. Clinical Obstetrics and Gynecology, Northwestern Univ. Sch. Medicine, Chicago, IL
Pediatr Ann; 10(12):486-489 1981

The epidemiology, pathogenesis, and clinical management in cases of in utero diethylstilbestrol (DES) exposure are described. DES was first used in pregnant diabetics, in those in danger of miscarriage, and in those who had previous still births or spontaneous abortions. The appearance in 1970 of six young women with clear-cell carcinoma of the vagina, an extremely rare neoplasm in this age group, led to the discovery that each of their mothers had been treated with DES during pregnancy. It has since been estimated that 80-90% of patients exposed to intrauterine DES will show gross and microscopic evidence of vaginal and cervical adenosis. Only 90/400 registered cases of clear-cell carcinoma have no history of DES exposure. The age range of DES-exposed clear-cell carcinoma is between 7-31 yr of age, with a median of 19. Topics discussed include embryology, management of DES-induced lesions, future fertility of those exposed in utero, occurrence of squamous cell carcinoma in DES-exposed women, and recent reports of genital abnormalities in males exposed in utero to DES. (17 Refs)

44. HEAD AND NECK NEOPLASIA FOLLOWING IRRADIATION FOR BENIGN CONDITIONS.

Scanlon EF, Sener SF
Dept. Surgery, Evanston Hosp., 2650 Ridge Ave., Evanston, IL, 60201
Compr Ther; 7(12):59-64 1981

The association of head and neck cancer with external beam radiotherapy for benign conditions (enlarged thymus, tonsillitis, pharyngitis, acne, tinea capitis) in children is discussed. Topics include microscopic changes in thyroid glands following low-dose irradiation, the development of thyroid neoplasia, diagnostic evaluation of thyroid masses, results of surgical exploration of thyroid abnormalities, choice of procedure for irradiated thyroid disease, and salivary and parathyroid gland neoplasia following irradiation. Nonspecific histologic changes present in irradiated glands include focal and adenomatous hyperplasia, chronic thyroiditis, and colloid nodule formation. Investigative methods in addition to physical evaluation currently being tested include thyroid imaging using technetium 99-pertechnetate. Analysis of available data indicates that the thyroid, parathyroid, and salivary glands can develop benign and malignant neoplastic changes after irradiation for benign conditions, with latent periods averaging approx 30 yr; once a glandular

abnormality within the irradiated field appears, the chances of other glands in the field developing neoplastic changes are significantly increased. (18 Refs)

45. NEOPLASIA ASSOCIATED WITH ANOMALOUS SEXUAL DEVELOPMENT AND ABNORMAL SEX CHROMOSOMES.

Scully RE

James Homer Wright Pathology Lab., Massachusetts General Hosp., Boston, MA, 02114

Pediatr Adolesc Endocrinol; 8:203-217 1981

Risk for development of malignant and benign genital neoplasms in children with intersexual state or abnormal sex chromosomes is reviewed. The children with cryptorchidism were shown to be 10-15x as predisposed to the development of malignant germ cells in descended testes. Bilateral testicular tumors were found to develop in small percent of male with adrenogenital syndrome. Testicular feminization is associated with such proliferative disorders as germ cell tumors, hamartomas, and adenomas. Gonadal dysgenesis is associated with gonadoblastomas, which are frequently complicated by seminomas or dysgerminomas. Wilms' tumors were reported in the patients with mixed gonadal dysgenesis. The patients with Klinefelter's syndrome were found to have germ cell tumors located in the mediastinum, retroperitoneum, and pineal regions. (46 Refs)

46. MONOSOMY 7 IN CHILDHOOD: A PRELEUKAEMIC STATE (MEETING ABSTRACT).

Chessells JM, Sieff CA, Pickthall HJ, Lawler SD

Departments of Haematology and Immunology, Hospital for Sick Children and Institue of Child Health, London, England

Br J Haematol; 49(1):129 1981

Between 1976 and 1979 Monosomy 7 was diagnosed in six boys aged 5 1/2 mo to 8 yr. Presenting features included hepatosplenomegaly (5/6), respiratory infections (4/6), pallor (2/6) and skin infections (1/6). Hematological features included a leukoerythroblastic anemia with leukocytosis and thrombocytopenia, and a hyperplastic marrow with a slight excess of blasts. Fetal Hb was normal or mildly raised (2/6), neutrophil function tests showed defective chemotaxis with reduced kiling, despite a normal nitroblue tetrazolium test. Cytogenic analysis of the marrow showed a preponderence of cells with Monosomy 7; the blood lymphocytes were normal. In three patients disease progressed to acute myeloid leukemia (AML) after 3 wk to 23 mo; the only patient who remitted received 6-mercaptopurine and prednisolone, but relapsed 16 mo later. A fourth child died from anemia and respiratory infection and a fifth developed massive splenomegaly and terminal myelofibrosis. The sixth patient is still in a stable state. Monosomy 7 is one of the commoner myeloproliferative states in childhood and carries a high risk of progressing to AML. The acute phase is usually resistant to chemotherapy, but even if responsive, treatment does not result in elimination of the abnormal clone. Allogeneic bone marrow transplantation should be considered in cases with a suitable donor. (no Refs)

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AUTHOR INDEX WITH CITATION NUMBERS

Alhonen-Hongist ... 29
Allen JC ... 34
Amiel JL ... 24
Auclerc MF ... 32
Aur RJ ... 26
Bai G ... 22
Barbet JP ... 19
Basmadjian GP ... 27
Benoit P ... 30
Bernard J ... 32
Bhaktaviziam A ... 20
Bilaniuk LT ... 21
Bizer VA ... 14
Blumer JL ... 28
Breur K ... 8
Bruce DA ... 21
Byrd RL ... 21
Byrd RL ... 35
Capp R ... 21
Cappiello V ... 41
Carli M ... 18
Casper JT ... 17
Ceci A ... 18
Chastang G ... 32
Chatten J ... 35
Chessells JM ... 46
Cieslak H ... 6
Crigler JF ... 5
Crist WM ... 2
De Bernardi B ... 18
Deakin DP ... 42
Demers J ... 30
Denes J ... 7
Denni J ... 19
Donahue DM ... 27
Donaldson M ... 2
Dunn R ... 28
Esterhay MD ... 28
Estupina Albaca ... 10
Fisher JN ... 26
Florczak-Mikici ... 37
Fossati-Bellani ... 15
Fried P ... 23
Gacs G ... 25
Gale G ... 35
Garcia Garcia A ... 10
Garcia I ... 38
Gasparini M ... 12
Gasparini M ... 15
Gehan EA ... 2
Gerbie MV ... 43
Ghavimi F ... 34
Gianni C ... 15
Goldman A ... 11
Goldstein DP ... 5
Gross S ... 28
Gutjahr P ... 31
Hammond D ... 2
Hays DM ... 2
Hecker WC ... 39
Heyn R ... 2
Hinkle GH ... 27
Hoffman HJ ... 21
Holcenberg J ... 41
Hors J ... 24
Hossfeld DK ... 16
Ice RD ... 27
Iwaszkiewicz K ... 6
Jacquillat C ... 32
Janne J ... 29
Jimenez E ... 38
Jimenez R ... 38
Judycki W ... 3
Kamen B ... 41
Keleti J ... 25
Kim T ... 41
Kincaid HL ... 40
Kline RW ... 17
Koczynski A ... 37
Koos R ... 25
Kraeft H ... 39
Kretzschmar K ... 31
Kun LE ... 17
Kutzner J ... 31
Lack EE ... 1
Lack EE ... 5
Lawler SD ... 46
Lawrence W ... 2
Le Mevel BP ... 13
Leonard JC ... 27
Li D ... 22
Lin KT ... 30
Lindberg R ... 2
Lipinski M ... 24
Littman P ... 21
Littman P ... 35
Lobo F ... 38
Lombardi F ... 12
Lombardi F ... 15
Lowman JT ... 23
Luo S ... 22
Mace B ... 19
Mancini A ... 18
Mathe G ... 24
Maurer HM ... 2
Miller DR ... 34
Miller LP ... 34
Modrzejewska B ... 6
Momparler LF ... 30
Momparler RL ... 30
Murray E ... 41
Newton W ... 2
Nitschke RM ... 27
Nix W ... 41
Norris DG ... 21
Oakhill A ... 35
Orley J ... 7
Pastore G ... 18
Perez-Atayde AR ... 1
Perez-Atayde AR ... 5
Petrement Aldai ... 10
Piaskowski VD ... 17
Pickthall HJ ... 46
Ragab AH ... 2
Raney RB ... 2
Raney RB ... 35
Raymond R ... 30
Revesz T ... 25
Rivard GE ... 30
Roul RK ... 20
Ruymann T ... 2
Sager WD ... 33
Sanchez Santos ... 10
Scanlon EF ... 44
Schaison G ... 32
Scherer E ... 16
Schmidt CG ... 16
Schuler D ... 25
Schuster SR ... 1
Schut L ... 21
Scully RE ... 45
Seeber S ... 16
Sener SF ... 44
Seppanen P ... 29
Sieff CA ... 46
Siemers E ... 16
Siimes M ... 29
Singh SP ... 20
Smith SD ... 23
Soule EH ... 2
Steinhardt E ... 36
Steinhardt GF ... 36
Steinherz PG ... 34
Stroh M ... 39
Sudarsanam D ... 20
Sutow WW ... 2
Sztaba R ... 3
Tamaro P ... 18
Tefft M ... 2
Timukhina VN ... 14
Tunell WP ... 27
Tursz T ... 24
Urban C ... 33
Van der Schuere ... 8
Vargas G ... 38
Vawter GF ... 5
Vietti T ... 41
Vinh L ... 19
Weil M ... 32
Willnow U ... 4
Willnow U ... 9
Wilson CB ... 21
Wilson DA ... 27
Wood GW ... 23
Yamashita TS ... 28
Zimmerman RA ... 21
Ziszi K ... 7

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-5
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 6-9
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 10-11
- NEUROBLASTOMAS AND CNS TUMORS..... 12-19
- LYMPHOMAS AND LEUKEMIAS..... 20-30
- OTHER SOLID TUMORS OF CHILDHOOD..... 31-32
- OTHER RELATED CLINICAL STUDIES..... 33-39
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 40

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. COMPUTED TOMOGRAPHY OF RHABDOMYOSARCOMAS OF THE SKULL BASE IN CHILDREN.

Scotti G, Harwood-Nash DC
(c/o Harwood-Nash) Dept. Radiology, Hosp. Sick Children, 555 University Ave., Toronto, Ontario M5G 1X8, Canada
J Comput Assist Tomogr; 6(1):33-39 1982

The computed tomographic (CT) findings of rhabdomyosarcomas involving the skull base in seven children are described.

HE 20.3173/2:

The tumor may arise in the nasopharynx, maxillary sinus, petrous bone, or orbit. Computed tomography clearly shows the full extent of bone destruction and replacement by soft tissue. The CT picture, however, is not specific and differential diagnosis with other aggressive lesion s involving the base of the skull such as histiocytosis X, neuroblastoma, and lymphoma can be made only with a combined clinical and radiological approach. (Author abstract) (20 Refs)

2. RHABDOMYOSARCOMA OF THE FEMALE UROGENITAL TRACT.

Hays DM, Raney RB, Lawrence W, Gehan EA, Soule EH, Tefft M, Maurer HM

Children's Hosp. Los Angeles, P.O. Box 54700, Terminal Annex, Los Angeles, CA, 90054

J Pediatr Surg; 16(6):828-834 1981

Results of management of 27 female patients (up to 21 yr old) with rhabdomyosarcoma of the urogenital tract are presented. Pelvic exenteration followed by irradiation and a 2-yr course of prophylactic multiple agent chemotherapy (vincristine, dactinomycin, cyclophosphamide) for primary bladder or vaginal tumors were found to be effective. Partial cystectomy for bladder rhabdomyosarcoma was inferior to exenteration, although the beneficial effects of chemotherapy-radiotherapy were apparent. Patients treated by similar limited surgical procedures for bladder rhabdomyosarcoma prior to chemotherapy had relapse rates of almost 100%. Six of eight patients with nondisseminated primary vaginal tumors did not have initial complete tumor resection; 6/8 had inadequate or no radiotherapy. The lack of mortality in this group after observations of 36-74 mo, all patients being tumor-free, indicates that vaginal tumors are particularly susceptible to chemotherapy. A variety of different surgical procedures were found to be effective against this tumor. Patients with vulval primaries were treated surgically by complete tumor excision and have done well on prophylactic chemotherapy with or without radiotherapy. In 11 patients subjected to lymphadenectomy for bladder, vaginal, or vulval lesions, only one dissection was positive. (17 Refs)

3. CHEMOTHERAPY OF CHILDHOOD RHABDOMYOSARCOMAS GROWING AS XENOGRAFTS IN IMMUNE-DEPRIVED MICE.

Houghton JA, Houghton PJ, Green AA

(c/o P. Houghton) Div. Biochemical and Clinical Pharmacology, St. Jude Children's Res. Hosp., Memphis, TN, 38101

Cancer Res; 42(2):535-539 1982

Xenografts derived from the neoplastic tissues of children with rhabdomyosarcoma have been used in immune-deprived mice to examine the efficacy of agents known to be active against this disease, and in others that received either limited or no clinical evaluation. Two models were derived; xenografts were established from tumors obtained from either (a) untreated patients or (b) from patients who had become refractory to conventional therapy. Model (a) identified as being effective each of these clinically used agents: vincristine, dactinomycin, cyclophosphamide, and doxorubicin; mitomycin C and 5-(3,3-dimethyl-1-triazeno)-2-methylimidazole-4 carboxamide also showed activity, as did busulfan in one tumor line. Tumors derived from refractory patients were significantly less resp onsive to all agents examined. (Author abstract) (40 Refs)

4. THE SEARCH FOR PULMONARY METASTASES IN PEDIATRIC PATIENTS: CT VS. CONVENTIONAL RADIOLOGY.

Smoger BR, Rosenberg HK, Koss J, Raney R, Belasco J, Lange BJ, Arger P

Dept. Radiology, Childrens Hosp. Philadelphia, 1 Children's Center, Philadelphia, PA, 19104

Ann Radiol (Paris); 25(1):47-53 1982

The radiologic literature has suggested that computed tomography is the method of choice for diagnosing pulmonary metastases. In an effort to examine this commonly accepted hypothesis, a retrospective study was done on all patients seen at the Children's Hospital of Philadelphia with soft tissue (excluding Wilms and osseous tumors) who had CT scan during their treatment. In quantitative terms, the CT scan showed more lesions than plain radiographs in 66% of the cases studied, but the results also show that in most instances, evaluation of the CT scan did not often yield conclusions not already drawn from the conventional radiographs. Most often, its greatest use was to confirm the conclusions already reached from the plain films. Similar findings have been noted by other authors. CT has proved useful for guidance during fine-needle biopsy. As previously reported by others, our biopsy results show a high correlation in the pediatric patient, between CT demonstrated lesions and biopsy proven metastases, rather than other unsuspected benign causes. We shall present our data, illustrative examples, and our conclusions. (Author abstract) (10 Refs)

5. DIAGNOSTIC AND THERAPEUTIC ASPECTS OF PIGMENT CELL TUMORS IN CHILDREN.

Neukam FW, Neukam D

Klinik und Poliklinken fur Zahn-, Mund- und Kieferkrankheiten, Abteilung fur Mund-, Kiefer- und Gesichtschirurgie, Medizinische Hochschule Hannover, Karl-Weichert-Allee 9, D-3000 Hannover 61, W. Germany

Dtsch Zahnaerztl Z; 36(11):735-738 1981

Diagnosis and treatment of pediatric pigment cell tumors (PCT) are discussed, and an illustrative case is presented. A 6-yr-old girl was presented for treatment of a hemangioma of the right cheek. The tumor was completely excised and identified as a juvenile melanoma (JM). No evidence of local tumor progression or metastasis was found 5 mo after treatment. Diagnosis of PCT requires consideration of various types of tumor. JM is characterized by three types of cell: spindle-shaped, polygonal epithelioid, and small round cells. Subepidermal large cells with 2-6 nuclei are also found. Total excision by methods which preserve tumor tissue for histological analysis is required; electrosurgery and other obliterative methods are to be avoided. Other types of growth that should be considered in diagnosis include nevocytic nevus, histiocytoma, isolated mastocytoma, nevoxanthoendothelioma, and blue nevus. Diagnosis is made difficult in many cases by the occurrence of many variations of these forms. While some benign growths may be excised for cosmetic reasons, some regress spontaneously and require no treatment. Proper differentiation of benign and malignant tumors is required to provide adequate therapy while sparing the patient unnecessary surgery. (14 Refs) (In GER)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

6. PREOPERATIVE CHEMOTHERAPY FOR WILMS' TUMOR.

Bracken RB, Sutow WW, Jaffe N, Ayala A, Guarda L
231 Bethesda Ave., Cincinnati, OH, 45267
Urology; 19(1):55-60 1982

Preoperative chemotherapy was administered to 19 children with Wilms tumor judged clinically to be unresectable at M D Anderson Hospital between January 1, 1962 and September 1, 1980. After two to four doses of vincristine, marked reduction in tumor size occurred in 16 patients. After chemotherapy 16 tumors could be resected completely, another required irradiation to reduce the tumor, and only two tumors could not be excised. Pathologically the most dramatic changes occurred in the undifferentiated interstitial stroma, followed next by changes in the nodular blastema. Differentiated elements were apparently not affected. No serious complications were attributed to the preoperative drug treatment. This experience suggests that in selected instances preoperative chemotherapy can effectively facilitate the therapy of Wilms tumor. (Author abstract) (9 Refs)

7. CATALASE LEVELS IN PATIENTS WITH ANIRIDIA AND/OR WILMS' TUMOR: UTILITY AND LIMITATIONS.

Ferrell RE, Riccardi VM
Genetic Marker Lab., Univ. Texas Health Science Center at Houston, P.O. Box 20334, Houston, TX, 77025
Cytogenet Cell Genet; 31(2):120-123 1981

The gene for red blood cell (RBC) catalase has recently been mapped to 11p13 and a gene dosage effect has been demonstrated for individuals with triplication or deletion of that region. Deletion of the 11p13 band has also been associated with aniridia, with and without Wilms' tumor. We studied the RBC catalase levels in individuals without detectable chromosomal abnormalities but with aniridia, Wilms' tumor, and the combination of aniridia and Wilm's tumor, to determine whether catalase levels might provide evidence for a sub-microscopic chromosomal deletion in the 11p13 region. All karyotypically normal patients were found to have normal catalase levels. (Author abstract) (14 Refs)

8. ATYPICAL INTRATUBULAR GERM CELLS AND TESTICULAR GERM CELL TUMORS IN CHILDREN.

Guinand S, Hedinger C
(c/o Hedinger) Institut de Pathologie de l'Universite de Zurich, Hopital Universitaire, CH-8091 Zurich, Switzerland
Ann Pathol; 1(4):251-257 1981

Intratubular atypical germ cells are quite frequent in seminiferous tubules of tumor-free tissue adjacent to germ cell tumors of the adult testis. Atypical germ cells are considered by several authors to be totipotent stem cells for different types of germ cell tumors. If this theory is correct, atypical germ cells should be demonstrable in the vicinity of germ cell tumors of children as well. We reviewed 30 testicular germ cell tumors of children aged 6 mo to 6-1/2 yr (17 yolk sac tumors and 13 mature teratomas). In five cases no tumor-free testicular tissue was present. In the remaining 25 cases -15 patients with yolk sac tumors and 10 patients with mature teratomas - no atypical germ cells, neither intra-nor extratubular in location, could be found. The question arises, therefore, whether these so-called atypical germ cells are really the precursor cells of germ cell tumors or if they represent, at least in some cases, a reactive phenomenon due to the presence of a germ cell tumor. (Author abstract) (46 Refs) (In FRE)

9. OVARIAN TUMORS IN CHILDREN AND ADOLESCENTS.

Liu B
Dept. Obstetrics and Gynecology, Friendship Hosp., Beijing, People's Republic of China
Zhonghua Fuchanke Zazhi; 16(2):104-107 1981

Clinicopathological findings and treatment are described for 82 cases (patients, 8-19 yr old) treated between 1959 and 1978. The majority of tumors were germ cell tumors (57.3%), common epithelial tumors (20.7%) and tumor-like conditions such as cysts (15.9%). the most common symptom was abdominal pain (91.5%). Tumor was palpable by patient in 41.5% (34/82) of cases, and tumor size ranged from 6 cm in diameter to a size comparable to full-term pregnancy, with 85.4% (70/82) of cases over 10 cm in diameter. Tumors were unilateral or bilateral. Treatment was by surgical removal. Among this series, there were 14 malignant cases (17.1%), 6 of whom died from tumor recurrence following treatment, with a mortality rate of 42.9%. Incidence rate, clinical symptoms, malignancy rate, relationship of pathology to prognosis, diagnosis and treatment of childhood and adolescent ovarian tumors are discussed. (16 Refs) (In CHI)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

10. AGGRESSIVE THORACOTOMY FOR PULMONARY METASTATIC OSTEOGENIC SARCOMA IN CHILDREN AND YOUNG ADOLESCENTS.

Han MT, Telander RL, Pairolero PC, Payne WS, Gilchrist GS, Sim FH, Pritchard DJ, Rodgers BM, Wesley JR
(c/o Telander) Mayo Clinic, Rochester, MN, 55905
J Pediatr Surg; 16(6):928-933 1981

Experience with 111 thoracotomies performed on 57 children and young adults less than 21 yr old with pulmonary metastatic osteogenic sarcoma is reported. After surgical ablation of tumors, 25 patients received no adjuvant therapy, 8 received transfer factor, 23 were included in trials of combination chemotherapy, and 1 received prophylactic pulmonary irradiation and actinomycin D. Pulmonary metastases developed in all 57 patients. All patients in whom pulmonary metastases occurred underwent early thoracotomy. At present, 26 patients are alive, 25 of them free of disease; 13 of the 26 patients have survived greater than 3 yr since first thoracotomy and 7 have survived greater than 5 yr. Longest survival with no evidence of recurrence has been 6.2 yr. Thirty-one patients have died of recurrent osteogenic sarcoma. Death occurred at av 9.8 mo after thoracotomy. Of the 25 patients who were disease-free after thoracotomy, 4 have received no chemotherapy before or after thoracotomy. Eight patients who originally received adjuvant therapy or transfer factor have had no adjuvant therapy since thoracotomy. The remaining 13 received adjuvant therapy following thoracotomy. (19 Refs)

11. TREATMENT OF MALIGNANT BONE TUMORS IN CHILDREN.

Schweisguth O
99, rue de la Glaciere, 75013 Paris, France
Sem Hop Paris; 57(41/42):1756-1760 1981

Studies on the treatment of children with malignant bone tumors, mostly osteogenic sarcoma and Ewing's sarcoma, are reviewed. Amputation or disarticulation continues to be the best local treatment for osteogenic sarcoma, but some patients can also benefit from irradiation. Conservative resection followed by internal prosthesis is still an experimental procedure. The results of chemotherapy with the combination of high doses of methotrexate and adriamycin have been controversial. Prophylactic pulmonary irradiation seems to reduce the incidence of pulmonary metastases. Controlled therapy trials are mandatory to assess the effectiveness of these complementary therapeutic methods. Local cure is achieved in 90% of the children with Ewing's sarcoma by high doses of irradiation, but with late sequelae in a fairly high percentage of the patients. Ewing's sarcoma is also highly sensitive to chemotherapy. (25 Refs) (In FRE)

NEUROBLASTOMAS AND CNS TUMORS

12. RADIOLOGICAL DIAGNOSIS AND PARTICULARITIES OF NEONATAL NEURO-BLASTOMA (PEPPER'S SYNDROME EXCLUDED). A REPORT OF TWENTY-FIVE CASES.

Hamdouch M, Hartmann O, Garel L, Sauvegrain J
Service de Radiologie, Hopital des Enfants-Malades, 149, rue de Sevres, 75730 Paris cedex 15, France
Ann Radiol (Paris); 25(1):5-11 1982

Twenty-five cases of neonatal neuroblastomas ie occuring within the 1st mo of life, are presented. These cases came from different pediatric hospitals but most of them had their follow-up in the Institut Gustave Roussy (Paris) during last 10 yr. This series represents twice the number of cases of Pepper syndrome seen during the same period of time in the same institutions. Primary locations are practically the same as in older children but the clinical presentation was less polymorphous. The oncological prognosis is better even in the cases with metastases. Conversely the neurological signs when present at birth remained unchanged after surgery. The different methods of imaging keep their importance for the es tablishment of the diagnosis especially in non secreting tumors. The new imaging methods, ultrasounds and CT are the best for staging and post therapeutic survey. (Author abstract) (19 Refs) (In FRE)

13. A CASE OF PRIMARY CEREBRAL NEUROBLASTOMA.

Nakajima F, Pak S, Chiba Y, Kuwabara T, Yagishita S
Dept. Neurosurgery, Yokohama City Univ., Yokohama 232, Japan
Neurol Med Chir (Tokyo); 21(9):973-978 1981

A case of primary cerebral neuroblastoma was reported with respect to the clinical course and pathological findings. The patient, a 3-yr-old girl, suffered from headache and vomiting. Carotid angiography and CT scan showed a large tumor in the right parieto-occipital lobe expanding to the right lateral ventricle and crossing the midline to the opposite side. A total resection of the tumor was performed, and Linac therapy with a tumor dose of 5,100 rads and chemoimmunotherapy (semustine (Me-CCNU), vincristine, OK-432) were given. Repeated CT scan showed recurrence of the tumor 3 mo after surgery, and further irradiation therapy (tumor dose of 4,500 rads) was given. She continued to deteriorate with multiple pulmonary metastases, and died 11 mo after the initial symptoms and 9 mo after the surgery. Histologically the tumor cells were small, uniform and spherical, were arranged in delicate fibrillary stroma, and occasionally formed Homer-Wright rosettes. Electron microscopy showed neuronal processes with growth cones and rosettes with distinct lumina. The luminar surfaces were covered with a smooth plasma membrane lacking any surface differentiation and the lateral surface of these cells had many cell junctions, reminiscent of a primitive neural tube. (Author abstract) (10 Refs) (In JPN)

14. CONGENITAL INTRASPINAL NEUROBLASTOMA: A TREATABLE SIMULANT OF MYELODYSPLASIA.

Kenney PJ, Siegel MJ, McAlister WH
(c/o Siegel) Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 510 South Kingshighway Blvd., St. Louis, MO, 63110
AJR; 138(1):166-167 1982

Two cases (girls, 1 day old, and 5 wk old) of spinal compression due to congenital intraspinal neuroblastoma are described. In both cases, myelodysplasia was the initial clinical diagnosis. Radiographic features and treatment of the 2 patients and 15 previously reported with congenital neuroblastoma and intraspinal extension are discussed. Current recommendations for treatment include a combination of decompressive laminectomy, surgical excision of adjacent abdominal tumor, radiotherapy and chemotherapy. (13 Refs)

15. COMPUTED TOMOGRAPHY OF PEDIATRIC INFRATENTORIAL BRAIN TUMORS.

Bilaniuk LT, Zimmerman RA, Schut L, Bruce DA
Neuroradiology Section, Hosp. Univ. Pennsylvania, Philadelphia, PA, 19104
J Neuroradiol; 8(3):229-242 1981

Computed tomography (CT) was used in the diagnosis of 141 cases of infratentoria l tumors in children. Typical CT findings were characterized for each tumor type. Brain stem gliomas were the most frequently occurring tumors (32) and typically displaced the fourth ventricle (FV) posteriorly, demonstrated decreased density, and showed rare calcification and slight partial contrast enhancement (CE). Medulloblastomas (25) expanded or compressed the FV, demonstrated increased density, and showed infrequent (13%) calcification and marked uniform CE. Cerebellar astrocytomas (24) of both the solid and cystic types displaced the FV anteriorly or laterally, demonstrated decreased density, and showed infrequent calcification and some CE depending on the type. Ependymomas (8) expanded or partially or totally obliterated the FV, demonstrated isodensity, and showed frequent (50%) calcification with nonuniform, slight to moderate CE. (19 Refs) (In FRE)

16. COMPUTED TOMOGRAPHY OF THE ORBIT AND JUXTASELLAR AREA IN CHILDREN.

Post MJ
Dept. Radiology and Neurological Surgery, Univ. Miami Sch. Medicine, P.O. Box 016960, Miami, FL, 33101
J Neuroradiol; 8(3):171-194 1981

Computed tomography (CT) was used to detect inflammations, trauma, pseudotumors, and tumors in 21 children. Orbital tumors included a dermoid cyst, fibrohistiocytoma, lymphan-

glioma, retinoblastoma, and bilateral optic nerve gliomas in a patient with von Recklinghausen's disease. Orbital and/or intracranial tumors included two cases of optic glioma associated with neurofibromatosis, and optic glioma. Intracranial tumors included cystic craniopharyngioma, and a hematoma associated with a pituitary adenoma. A small cell sarcoma with secondary orbital and intracranial extension was detected in a 12-yr-old girl who presented with a mass in the right neck. CT is highly recommended in the diagnosis of orbital and juxtasellar lesions because of its sensitive density discrimination and ability to provide direct visualization of the optic nerve, globe, and extraocular muscles. Since visual loss and/or ophthalmoplegia, which were presenting signs in the reported cases, can be symptoms of both intracranial and orbital lesions, localization of ophthalmological lesions and a purely clinical basis is considered almost impossible. (32 Refs) (In FRE)

17. THE DETECTION AND DIAGNOSIS OF TUMORS OF THE CNS BY CYTOLOGICAL STUDY OF CEREBROSPINAL AND TUMORAL CYST FLUID.

Pfister A, Vendrely E, Delezoide AL, Da Lage C, Dhont P

Laboratoire Central d'Histologie, Embryologie et Cytologie, Groupe Hospitalier Necker-Enfants Malddes, 149, rue de Serves, 75015 Paris, France

Arch Anat Cytol Pathol; 29(5):295-303 1981

The cytology of tumoral cysts and cerebrospinal fluid (CSF) from 161 tumors of the CNS in children was studied. A total of 486 cytological examinations were conducted. Correct diagnoses were obtained in 58/161 cases, and in 10 cases the diagnosis proposed was incorrect. The most favorable results were obtained through CSF analysis with medulloblastoma (MB) (7/26 correct), ependymoblastomas (EB) (4/5 correct), and tumors of the pineal region (TPR) (7/7 correct). Before surgery 5/12 cases of MB were diagnosed, 1/3 EB, and 5/7 TPR. After treatment, correct diagnoses were established for 2/22 MB, 3/5 EB, and 2/4 TPR. Analysis of cystic fluids permitted differential diagnosis between benign and malignant astrocytomas, glioblastomas, and EB. (6 Refs) (In FRE)

18. TUMORS OF THE LATERAL VENTRICLES IN CHILDREN.

Luo S

Dept. Neurosurgery, Xuanwu Hosp., Beijing, People's Republic of China

Zhonghua Zhongliu Zazhi; 3(2):129-131 1981

Diagnosis, surgical treatment and clinicopathological findings of 39 cases (25 males, 14 females, 11 mo-15 yr old) representing 3.25% (39/1,200) of all childhood intracranial tumors treated during 1955-1978, are discussed. Pathologically most of them were ependymomas (15 cases), astrocytomas (7 cases), papillomas of the choroid plexus (5 cases), meningiomas (4 cases) and mixed gliomas (2 cases). Over half of the tumors (20 cases were located in the lateral ventricular trigone region). Diagnostic technics used included examination of ventricular fluid, ultrasonography, electroencephalography, and cerebral angiography. Tumors were treated by surgery, with operative mortality of 17.9%. Long-term results were dependent on the pathological nature of the tumor and method of its resection. Patients with advanced malignant tumors who underwent only partial or incomplete tumor resection seldom survived more than one yr. Surgical technics are discussed. (5 Refs) (In CHI)

19. PRIMARY MALIGNANT CEREBELLAR ASTROCYTOMAS IN CHILDREN: A SIGNAL FOR POSTOPERATIVE CRANIOSPINAL IRRADIATION.

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Int J Radiat Oncol Biol Phys; 7(12):1661-1665 1981

Therapeutic results and natural history of 13 cases of malignant astrocytoma of the cerebellum (MAC) are reported. Eight cases involved primary pure malignant astrocytomas; five cases involved mixed tumors in which the malignant astrocytoma component predominated. All tumors had been surgically and histologically confirmed and had been treated with 60Co irradiation. Seven patients were treated with craniospinal irradiation (CSI) consisting of 4,500 rads to the whole brain, a 1,000 rad booster to the posterior fossa, and 3,000-4,000 rads to the spinal axis given over five weekly treatments. Six patients received only cranial irradiation (CI); four of these received only partial CI. Median age of all patients was 9.8 yr. Male:female ratio was 1.6. Median survival (MS) was 20 mo. MS for patients receiving CI was 10 mo compared with 48 mo for patients receiving CSI. At reporting time six CSI patients were alive with no evidence of disease; one CI patient was alive with disease. All other patients had died. Five CI patients developed spinal subarachnoid dissemination after a median 9.6 mo. None of the CSI patients developed spinal metastases. Results suggest that MAC should be treated by CSI, rather than by more restricted radiotherapy. (26 Refs)

LYMPHOMAS AND LEUKEMIAS

20. INTERMEDIATE DOSE METHOTREXATE (IDM) IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA IN NORWAY. REPORT ON A NATIONAL TREATMENT PROGRAM.

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Barneklinikken, Regionsykehuset i Trondheim, 7000 Trondheim, Norway

Haematologia (Budap); 14(3):257-263 1981

Results of intermediate-dose methotrexate (MTX) with leukovorin rescue as treatment in hospitalized patients following induction therapy were investigated in 95 children with acute lymphocytic leukemia. Induction therapy consisted of vincristine and steroids followed by L-asparaginase for 10 days. After complete remission had been achieved three iv infusions of MTX were given at 3-wk intervals, with one-third of the dose given as a bolus. A single dose of leukovorin, 12 mg/square meter (m2), was given 24 hr after the iv MTX. At the start of induction therapy, each patient received intrathecal MTX (12 mg/m2); all but six patients received a total of eight such doses. During the maintenance phase, patients received 6-mercaptopurine, vincristine, prednisone, and MTX. During a median follow-up period of 36 mo, only 15 relapses occurred. Twelve patients, of whom 5 were in continuous complete remission, died during the follow-up period. According to probability curves, approx two-thirds of the patients were still in remission at 57 mo. Incidences of CNS leukemia and combined systemic CNS leukemia were low (5 cases diagnosed during the study). Testicular involvement was not present in any of the 58 boys studied, suggesting that routine testicular biopsy is unnecessary when using this protocol. (6 Refs)

21. SANCTUARY THERAPY: A RANDOMIZED TRIAL OF 724 CHILDREN WITH PREVIOUSLY UNTREATED ACUTE LYMPHOBLASTIC LEUKEMIA. A REPORT FROM CHILDRENS CANCER STUDY GROUP.

Nesbit ME, Sather H, Robison LL, Donaldson M, Littman P, Ortega JA, Hammond GD
Children's Cancer Study Group Operations Office, 1721 North Griffin Ave., Los Angeles, CA, 90031
Cancer Res; 42(2):674-680 1982

Between 1972 and 1974, Children's Cancer Study Group enrolled 724 children with newly diagnosed acute lymphoblastic leukemia on a single randomized clinical trial. Study CCG-101 was designed to test four types of presymptomatic central nervous system and sanctuary therapies consisting of (a) 2,400-rad craniospinal radiation therapy (RT) plus 1,200-rad extended-field RT, which included the liver, spleen, kidneys, lower abdomen, and gonads; (b) 2,400-rad craniospinal RT; (c) 2,400-rad cranial RT plus intrathecal methotrexate (it MTX); and (d) it MTX alone. Patients all received a 28-day induction course of vincristine, prednisone, and L-asparaginase and were maintained subsequently on a regimen consisting of daily 6-mercaptopurine, weekly MTX, and monthly pulses of vincristine and prednisone. Patients treated with six doses of it MTX alone had a significantly higher incidence of central nervous system relapse than did patients treated with 2,400-rad craniospinal RT plus 1,200-rad abdominal RT, 2,400-rad craniospinal RT, or 2,400-rad cranial RT plus it MTX. There was no significant difference in marrow remission duration or survival of the treatment groups. There appears to be a benefit with regard to length of bone marrow remission and survival for patients with initial white blood counts greater than 20,000/cu mm treated with cranial RT plus it MTX. The majority of the patients remaining on study have now discontinued maintenance therapy. The 8-yr overall estimated survival rate on this study is 56%, and the disease-free survival rate is 52%. (Author abstract) (27 Refs)

22. MENINGOSIS PROPHYLAXIS WITH INTRATHECAL 198AU-COLLOID AND METHOTREXATE IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA.

Metz O, Stoll W, Plenert W
Dept. Pediatrics, Carl-Zeiss-Stiftung, Kochstrasse 2, 6900 Jena, E. Germany
Cancer; 49(2):224-228 1982

Since 1972, telecobalt irradiation plus intrathecal methotrexate (ITMTX) has been successfully replaced in Jena by intrathecal colloidal radioactive gold (198Au) plus ITMTX for meningosis prophylaxis in leukemia. Seventy-three children with acute lymphocytic leukemia (ALL) were given 1.24-4.89 mCi (45.8-181 MBq) of colloidal 198AU IT after successful initiation of remission. During cytostatic therapy, the following relapses occurred: meningosis leukemica, five patients (6.8%); bone-marrow relapse and meningosis leukemica, one patient; and bone-marrow relapse, 20 patients (27.4%). In 18 children, combination chemotherapy was terminated after 2 1/2 or 3 yr of treatment. After that time, one meningeal relapse and six bone-marrow relapses occurred. Within the first 24 hr after application of radioactive gold, headaches, vomiting, and fever occurred in less than 10% of the children. An apathy syndrome, leukencephalopathy, or severe infections, were not observed in a single case. Radioactive gold spreads in the subarachnoid space and is phagocytized by the arachnoidea. The tumoricidal effect extends selectively over the space of distribution of the latent meningosis leukemica. The cerebral parenchyma remains unaffected by radiation. Thus, radioactive gold may be preferable to telecobalt irradiation in preventing central nervous system leukemia. (Author abstract) (33 Refs)

23. IMMUNOLOGIC PARAMETERS OF CHILDREN WITH ACUTE LEUKOSIS AFTER CESSATION OF POLYCH EMOTHERAPY UNDER REPEATED IMMUNOSTIMULATION WITH INTRADERMAL B.C.G.

Blau HJ, Eggers G, Kruse H, Schulz M, Grulich M
Kinderklinik des Bereiches Medizin, Wilhelm-Pieck-Universitat Rostock, Rembrandtstr. 16/17, DDR-2500 Rostock, E. Germany
Arch Geschwulstforsch; 52(2):123-128 1982

Immunologic parameters were measured in children with acute leukosis during immunostimulation with BCG after cessation of polychemotherapy. Fourteen patients, including 11 with acute lymphoblastic leukemia (ALL) and 3 with acute myeloblastic leukemia (AML) began immunostimulant therapy 6 wk after cessation of a 3-yr course of intensive polychemotherapy. BCG (0.05 ml) was injected id 2x/yr up to 5 yr and once/yr thereafter. BCG vaccination produced significant increases in peripheral-blood counts of lymphocytes (4,466 x 10(9)/liter before BCG vaccination to 7,240 x 10(9)/liter 6 wk after the third vaccination) and cells forming E-rosettes (48.5 +-21.1% before BCG treatment to 53.2 +-13.0% 6 wk after the third vaccination). Three out of 24 skin tests showed positive tuberculin reaction. A control group of patients with AML who received polychemotherapy but no BCG treatments showed no such increases. No relapse occurred in 14 patients receiving BCG during 1-3 yr observation. Among controls 19/30 were alive and 15/30 were in stable remission after an av 4 yr. Results suggest beneficial effects of BCG vaccination for patients with ALL or AML, but the patient sample was too small too draw definite conclusions. (11 Refs)

24. ANTILEUKEMIC CELLULAR IMMUNITY IN CHILDREN WITH ACUTE LYMPHOID LEUKEMIA UNDERGOING IMMUNOTHERAPY.

Bergolits VM, Osipov SG, Eremeev VS, Rumiantsev AG, Akimova GV
Lab. Experimental Tumor Therapy, P. A. Hertsen Oncological Inst., Moscow, USSR
Probl Gematol Pereliv Krovi; 26(11):12-14 1981

Effect of immunotherapy on cellular immunity was studied in 30 children with acute lymphoblastic leukemia (ALL). Induction therapy consisted of vincristine and prednisolone alone or in combination with administration of autologous blocking antibodies IgG and IgM. During remission, the patients received maintenance chemotherapy alone or in combination with BCG vaccine. Administration of IgG and IgM inhibited synthesis of antibodies blocking the antileukemic effect of immune lymphocytes. Maintenance therapy with BCG vaccine resulted in significant stimulation of cytotoxic killer cells. (9 Refs) (In RUS)

25. DIAGNOSTIC AND THERAPEUTIC PROBLEMS IN LYMPHOBLASTIC CHILDHOOD LEUKEMIA PRESENTING WITH APLASTIC BONE MARROW.

Kajtar P, Revesz T, Karolyi Gy, Molnar S, Kardos G, Keleti J, Koos R
Gyermekklinika, Pecsi Orvostudomanyi Egyetem, Pecs, Hungary
Orv Hetil; 122(44):2713-2716 1981

The diagnostic and therapeutic problems of acute lymphoblastic leukemia (ALL) with bone marrow aplasia in childhood are illustrated on the basis of the report of two cases (6-and 2-yr-old boys). The peripheral blood smears were extremely hypocellular, showing practically only mature lymphocytes, and bone marrow biopsies also showed pancytopenia in both patients. Therefore, panmyelophthisis was diagnosed tentatively

in both patients, even though it was not possible to rule out acute leukemia with certainty. Both patients were treated with prednisolone (PR) and oxymetholone, which caused rapid improvement in the patients' status (in 4 and 2-3 wk, respectively). Repeated bone marrow biopsies showed clearly ALL immediately upon improvement in the first patient, but only after a 2-mo observation period in the second. Intensive chemotherapy with L-asparaginase (ASP) + cytosine arabinoside (ara-C), vincristine (VCR) + adriamycin (ADR) + cyclophosphamide (CP), 6-thioguanine, 6-mercaptopurine and high-dose methotrexate + citrovorum factor failed to lead to remission in the first patient who died 12 mo after the diagnosis of ALL was established. The second patient so failed to achieve remission during chemotherapy with ASP + ara-C, VCR + ADR + CP, and died 10 mo after ALL was diagnosed. The leukemic phase following the complete remission achieved by PR therapy can already be considered the first recurrence, and therefore the results of the specific antileukemia therapy are usually poor. (21 Refs) (In HUN)

26. URATE-OXIDASE PROPHYLAXIS OF URIC ACID-INDUCED RENAL DAMAGE IN CHILDHOOD LEUKEMIA.

Masera G, Jankovic M, Zurlo MG, Locasciulli A, Rossi MR, Uderzo C, Recchia M
Clinica Pediatrica de Marchi, Universita di Milano, Via Commenda 9, 201222 Milano, Italy
J Pediatr; 100(1):152-155 1982

One of the complications of the initial phase of acute leukemia therapy is uric acid-induced nephropathy caused by massive cell lysis. Prophylactic therapy has included the use of allopurinol, a xanthine-oxidase inhibitor, and of fluids, bicarbonate, and diuretics (acetazolamide). Urate-oxidase, an enzyme which converts uric acid into allantoin, is claimed to be particularly useful in the prevention of this complication, but there are few published data regarding its use. We have studied the efficacy of urate-oxidase therapy for the prevention of uric acid-induced nephropathy in the initial phase of antineoplastic treatment in a homogenous group of pediatric patients with acute leukemia. (Author abstract) (11 Refs)

27. CALCIFIED CEREBRAL NECROSIS FOLLOWING ALL THERAPY.

Muller KM, Menne R, Bachmann KD, Grobe H
Inst. Pathology, Univ. Munster, Domagkstr. 17, D-4400 Munster, W. Germany
J Cancer Res Clin Oncol; 102(1):81-91 1981

Calcified cerebral necrosis was an unusual finding at the autopsy of a 13-year-old girl who died after prolonged therapy for ALL. The patient had shown symptoms of progressive cerebra l damage subsequent to a second cycle of prophylactic high-dose cytostatic therapy combined with cranial irradiation. Pathoanatomic examination revealed extensive florid recurrency of meningosis and leukemia encephalosis with scalloped calcified necroses measuring up to 5 cm, in the medullar layer of brain and cerebellum. Located predominantly near the ventricular area, encapsulated necroses showed many fibrous vessels with thickened walls and stenosed or obstructed lumina. The cerebral cortex remained largely unaffected by tissue destruction. Besides methotrexate toxicity and the enhancing effect of irradiation the vascular involvement was interpreted as a particularly important factor. Formal pathogenesis is attributed to combined chemo- and radiotherapy in parallel to leukemic infiltration of vascular walls and partial obstruction of lumina by tumor emboli. Wall damage, severe fibrosis, and consecutive nutritional defects result in the destruction of cerebral tissue. The preferential occurrence of necrosis in cortex-adjacent medullar layers is explained by the relatively poor blood supply of this border zone between meningeal and intracerebral vasculature. From the terminal pattern of multiple calcified necroses in cerebral tissue, no safe conclusion can be drawn pathoanatomically with regard to the actually fatal factor, whether it is the leukemic infiltration of vascular walls, the effect of cytostatic agents, or that of irradiation. The proposed multifactorial pathogenesis of cerebral calcification may be supported by computed tomography (CT) intra vitam. (Author abstract) (38 Refs)

28. SERIOUS INFECTIONS DURING CONTINUING TREATMENT OF ACUTE LYMPHOBLASTIC LEUKAEMIA.

Ninane J, Chessells JM
Dept. Hematology, Hosp. for Sick Children, Gt Ormond St., London WC1N 3JH, England
Arch Dis Child; 56(11):841-844 1981

Seventy-six of 168 children with acute lymphoblastic leukemia, who had completed induction therapy and central nervous system prophylaxis, were each admitted to hospital at least once during subsequent treatment with an infectious illness. The time spent in hospital was calculated as a proportion of the total number of days at risk and had a mean value of one day in 75. Sixty-three (37%) children spent longer than this in hospital, particularly patients younger than 5 years and those on a more intensive protocol; a 3rd year of treatment appeared to carry no significant additional risk of infection. Death due to infection occurred in 14 (8.3%) children; these deaths were more common in younger patients and during the first 2 years of treatment and were mainly due to measles, septicemia, or cytomegalovirus. These findings show that younger children and those receiving more intensive treatment are at greater risk of infection. The risk is not one of exotic infections, but of measles, a preventable disease. (Author abstract) (15 Refs)

29. CONCURRENT HAND MIRROR CELL VARIANT OF ACUTE LYMPHOBLASTIC LEUKEMIA AND INFECTIOUS MONONUCLEOSIS.

Dash S, Nayak GC, Pal SR, Dash RJ
Dept. Hematology, Postgraduate Inst. Medical Education Res., Chandigarh 160 012, India
Indian J Cancer; 18(4):298-300 1981

A case of rare hand mirror cell (HMC) variant of acute lymphoblastic leukemia (ALL) occurring in a 10-yr-old boy is reported. The child presented with a low grade fever, upper respiratory tract infection, mildly tender thyroid enlargement and cervical lymphadenopathy. Infectious mononucleosis specific heterophil antibody titer against sheep RBC after guinea pig kidney adsorption was 1:20, and came down to 1:10 over a period of six wk. The child was diagnosed as having HMC variant of ALL, of T cell origin, associated with infectious mononucleosis. A chemotherapeutic regimen was begun consisting of vincristine (VCR), prednisone (PRD) and cyclophosphamide for 5 wk. Although leukocyte count lowered, there remained 62% circulating blasts with occasional HMC. Chemotherapy was discontinued and patient remained in remission for 4 mo. At this time leukocyte count again rose with 75% blasts. L-asparaginase plus VCR and PRD initiated a second remission and the child has remained well after 8 mo since initial diagnosis. (20 Refs)

30. CHILDHOOD ACUTE LEUKEMIA.

Miller DR
Memorial-Sloan Kettering Cancer Center, New York, NY
Curr Ther; 28:309-318 1981

Diagnosis, prognosis, supportive care, anemia, hemorrhage, infection, electrolyte imbalance, and hyperuricemia in various acute leukemias of childhood are discussed. Specific therapy of acute lymphoblastic leukemia (ALL; induction, extramedullary leukemia) and acute nonlymphoblastic leukemia (ANLL; induction, psychosocial support) is detailed. Design of treatment strategy in childhood acute leukemia requires accurate diagnosis using morphologic criteria, histochemical stains, and characterization of the immunologic cell surface. Prognosis in childhood ALL is determined by clinical and biologic features identified at or early after diagnosis. While morphologic subtypes in ANLL are not prognostic, a better rate of complete remission induction is found in patients 5-10 yr old with initial WBC less than 20,000/ul. In most leukemias certain general measures are required to restore physiologic homeostasis at time of diagnosis. Chemotherapy for acute leukemia in childhood and side effects and drug toxicity are detailed. (no Refs)

OTHER SOLID TUMORS OF CHILDHOOD

31. BENIGN CLINICAL BEHAVIOR OF IMMATURE MEDIASTINAL TERATOMA IN INFANCY AND CHILDHOOD: REPORT OF TWO CASES AND REVIEW OF THE LITERATURE.

Carter D, Bibro MC, Touloukian RJ
Dept. Pathology, Yale Univ., 310 Cedar St., New Haven, CT, 06510
Cancer; 49(2):398-402 1982

Germ cell tumors of the mediastinum can be divided into three categories: (1) ma ture teratomas which have all elements at a mature level; (2) immature teratomas which are similar to the mature teratomas, but also contain immature epithelial or mesenchymal elements or blastema; and (3) embryonal tumors which contain elements which are recognized as dysgerminoma, embryonal carcinoma with or without yolk sac elements, and choriocarcinoma. Immature teratomas are the rarest type, accounting for only about 1% of mediastinal teratomas. Two cases of immature teratoma of the mediastinum occurring in infants are reported. One tumor was completely excised. The child is well without evidence of disease 2 yr later. The other immature teratoma was unresectable. Biopsy showed it to be similar to the teratoma that was excised. No postoperative treatment was given. The tumor has not changed appreciably in size, but the child has grown normally for 6 yr so that the tumor mass, which initially filled his chest, is now evidenced as mediastinal widening. A review of the reported cases of immature teratomas in the mediastinum shows that the prognostic value of the histologic appearance of these tumors has not been developed to the same degree as it has for teratomas in the ovary or the sacrococcygeal region. The immature teratomas that occur in infants behave as mass lesions as do the mature teratomas. Immature teratomas in the mediastinum of children in their late teens and in young adults behave as highly malignant tumors similar to the embryonal carcinomas. (Author abstract) (28 Refs)

32. HEPATOMA IN CHILDREN - A CLINICAL ANALYSIS ON 15 CASES.

Iwafuchi M, Muto T, Ohsawa Y, Yamashita Y, Matsuda Y, Yoshida K
First Dept. Surgery, Niigata Univ. Sch. Medicine, Niigata 951, Japan
Jpn J Surg; 11(6):454-459 1981

Clinical and pathological aspects of hepatomas in children focusing on operability and prognosis are discussed. In 10 boys and 5 girls with hepatoma, sex, pathologic findings, operation, and prognoses were evaluated. Children were 1 mo to 12 yr old at the time of operation. Two children were 12 yr old at the time of operation, one died 4 mo and the other 9 mo after exploratory laparotomy. No significant relationship was noted between the age at the time of operation and the prognosis of patients. The tumors were successfully removed in 12 children. Left lateral segmentectomy was performed in four patients; all were alive at the reporting time. Two of four patients who underwent right hepatic lobectomy were alive at the reporting time. Trisegmentectomy was performed in four patients; two were alive at the reporting time, and one of them had pulmonary metastases. Cases of four children (2 girls, 2 and 4 yr old; 2 boys, 11 mo and 1 yr old) who underwent pulmonary lobectomy or partial resection of the lung because of pulmonary metastases are presented. In these four patients, histological examination of the pulmonary lesion reveale d hepatoblastomas of an embryonal type. Eight of 12 operated patients are alive including 1 patient with pulmonary metastases. Thirteen patients had hepatomas of massive type and 2 patients had hepatomas of nodular type. In 5/12 patients pulmonary metastases were detected after hepatectomy. One of these patients, a girl, was still alive with no sign of recurrence for over 8 yr after surgery. Evaluation of adjuvant therapies administered to the patients was not made. (19 Refs)

OTHER RELATED CLINICAL STUDIES

33. RADIOTHERAPY IN THE TREATMENT OF CHILDHOOD TUMORS.

Gyenes G
Klinikai Onkologiai Intezet, Orszagos Onkologiai Intezet, Budapest, Hungary
Magy Onkol; 25(4):235-239 1981

Radiotherapy of childhood tumors is reviewed. Radiotherapy, mostly combined with other forms of treatment, is indicated in the treatment of acute leukemia, Hodgkin's disease, non-Hodgkin's lymphoma, CNS tumors, neuroblastoma, Wilms' tumor, soft-tissue sarcoma, osteogenic sarcoma, Ewing's sarcoma, and retinoblastoma. The total radiation dose is usually not lower than in adults, with the exception of patients under the age of 1-1.5 yr. The 5-yr survival rates of children have shown a considerable increase during the period 1971-1975 compared with the period 1965-1969: from 5% to 40% for acute leukemia, from 45% to 60% for Hodgkin's disease and non-Hodgkin's lymphoma, from 45% to 50% for CNS tumors, from 22% to 40% for neuroblastoma, from 60% to 70% for Wilms' tumor, from 36% to 40% for soft-tissue sarcoma, and from 22% to 40% for bone tumors. (25 Refs) (In HUN)

34. CARDIOTOXICITY OF ANTHRACYCLINES. TWELVE PEDIATRIC CASES.

Favrot MC, Pouyau G, Souillet G, Philip T, Bozzio A, Philippe N
Clinique medicale infantile, Hopital E.-Herriot, place d'Arsonval, Lyon Cedex 2, France
Pediatrie; 36(6):437-450 1981

Thirteen cases of heart failure were observed among 481 children (2-16 yr old) treated with adriamycin or daunorubicin as part of polychemotherapy for disorders including solid tumors (144 patients), lymphomas and malignant histocytosis (97), or acute non-lymphoblastic leukemia (39). Affected patients were 2 yr 6 mo to 12 yr old. Of the 13 cases of cardiotoxicity observed, 10 were chronic. In 3/10 children, cardiac insufficiency increased rapidly until patient death. In 5/10 patients, cardiac insufficiency was stabilized under treatment with digitalis and diuretics, although electrocardiographic abnormalities persisted. In only 2/10 patients, was clinical stabilization accompanied by a normalization of the electrocardiogram, particularly the QRS interval. The remaining patient had presented with left ventricular hypertrophy prior to the initiation of anthracycline therapy. The incidence of heart failure was 2.7% for the 481 patients, but only 1.1% for those patients who had received less than 500 nanog/square meter of the anthracycline. A time-dose relationship was observed. The risk of anthracycline cardiotoxicity seems to be increased in younger patients. Other etiological factors and clinical considerations are discussed. (24 Refs) (In FRE)

35. AUTOLOGOUS BONE MARROW RESCUE IN THE TREATMENT OF ADVANCED TUMORS OF CHILDHOOD.

Ekert H, Ellis WM, Waters KD, Tauro GP
Dept. Clinical Hematology and Oncology, Royal Children's Hosp., Flemington Road, Parkville, Victoria 3052, Australia
Cancer; 49(3):603-609 1982

High-dose multiagent chemotherapy followed by autologous marrow rescue was used the treatment of 13 patients with Stage III or IV childhood tumors. Encouraging results are being obtained in abdominal lymphoma (1/3 complete remissions (CR)); rhabdomyosarcoma (2/4 CR); and retinoblastoma (1/2 CR). In neuroblastoma, the results are disappointing, with only one of four patients in CR; this patient developed a lymphoma associated with Epstein-Barr virus infection. Marrow reconstitution was obtained in 11 patients, with recovery of neutrophils to greater than 0.5 x 10(9)/liter between 6 and 30 days and platelet recovery to greater than 50 x 10(9)/liter between 7 and 38 days. Investigations on the numbers of cells or committed granulocyte precursors (CFU-c's) infused and parameters of hematologic recovery show poor correlation and suggest that a more accurate and reliable assay for the predictability of cryopreserved marrow to reconstitute marrow function within a reasonable time is necessary. Nonhematologic toxicities of high-dose multiagent chemotherapy are the principal dose-limiting factors. (Author abstract) (16 Refs)

36. IMMUNIZATION AGAINST INFLUENZA IN CHILDREN WITH CANCER: RESULTS OF A THREE-DOSE TRIAL.

Brown AE, Steinherz PG, Miller DR, Armstrong D, Kellick MG, Gross PA, Davis AE
Memorial Sloan-Kettering Cancer Center, New York, NY
J Infect Dis; 145(1):126 1982

Immunization against influenza is recommended for children with neoplastic diseases despite poor immunogenicity in those receiving concomitant chemotherapy. The data show that a third dose of trivalent influenza virus vaccine does not significantly increase the number of children receiving chemotherapy who achieve HAI antibody titers of greater than or equal to 1:32 regardless of the vaccine antigen. Children with cancer who were not receiving chemotherapy achieved HAI antibody titers of greater than or equal to 1:32 with the same frequency as did normal children in the national study. These results confirm previous studies that show that primary immunization with influenza virus vaccine often is not immunogenic in children with neoplastic diseases who are receiving concomitant chemotherapy. The 'recall of the old antigen' (A/Texas/1/77 [H3N2]) is less hampered by the chemotherapy status. Other methods of immunization, such as adjusted schedules of immunization and, possibly, adjuvants and immunopotentiators, should be examined to determine how to immunize cancer patients successfully against newer strains of influenza virus. (Author abstract) (3 Refs)

37. EFFECTS OF THERAPY ON NUTRITIONAL STATUS OF THE PEDIATRIC CANCER PATIENT.

Donaldson SS
Dept. Radiology, Div. Radiation Therapy, Stanford Univ. Medical Center, Stanford, CA, 94305
Cancer Res; 42(2,Suppl):729S-736S 1982

Children with cancer are at high risk for major nutritional problems both from the tumor itself and from the treatment administered. Overt malnutrition is seen in as many as 17% of children with newly diagnosed localized tumors and 37% of those with metastatic disease. Weight loss in children with cancer is directly correlated with a poor nutritional status at the time of diagnosis and with a low serum albumin. Massive surgical resections are a common source of nutritional problems and are usually not indicated as primary therapy in children with cancer. Both radiotherapy and chemotherapy are associated with recognized acute and long-term complications which may have an impact upon the nutritional status of the child. The majority of childhood cancers are best managed by a multidisciplinary approach including limited surgery, irradiation, and chemotherapy. This combined modality approach requires careful management including monitoring for known sequelae such that optimistic cure rates can be achieved without compromising the nutritional status of a child with cancer. (Author abstract) (54 Refs)

38. SUPPORTIVE NUTRITIONAL INTERVENTION IN PEDIATRIC CANCER.

Rickard KA, Baehner RL, Coates TD, Weetman RM, Provisor AJ, Grosfeld JL
Dept. Pediatric Nutrition and Dietetics, James Whitcomb Riley Hosp. for Children, Indiana Univ. Sch. Medicine, Indianapolis, IN, 46223
Cancer Res; 42(2,Suppl):766S-773S 1982

The effectiveness of enteral and parenteral nutrition in supporting a satisfactory nutritional status and/or reversing protein-energy malnutrition protein-energy malnutrition was evaluated in 28 children, ages 1 to 19 yr, with a variety of neoplasms. A comprehensive enteral nutrition program was found to be ineffective in preventing nutritional depletion during initial intense treatment of most children. Sixteen of 21 patients who received a comprehensive enteral nutrition program had a decreased kilocalorie intake and significant wt loss. On the other hand, total parenteral nutrition provided at a kilocalorie intake of 100% of the recommended dietary allowance and 2.5 to 3 g amino acids per kg for 28 or more days effectively restored muscle and fat reserves, increased serum albumin and transferrin to normal concentrations, and, in most patients, re-

versed anergy to recall skin test antigens. Every patient who received parenteral nutrition gained wt despite continuing treatment. These data suggest that most children with advanced Wilm's tumors will benefit from early and continued provision of adequate nutrition, such as that provided by total parenteral nutrition. Once patients completed the initial phase of treatment, however, enteral nutrition was effective in restoring or maintaining muscle and fat reserves in patients who had no evidence of tumor. Further research is needed to determine the roles of enteral and parenteral nutritional support in children with specific tumor types, when and how to implement effective enteral nutrition programs, and the value of parenteral nutrition in the support of the nourished child. (73 Refs)

39. ISSUES IN THE PSYCHOLOGICAL CARE OF PEDIATRIC ONCOLOGY PATIENTS.

Brannquell D, Hall MD
Minneapolis Children's Health Center, 2525 Chicago Ave., Minneapolis, MN, 55404
Am J Orthopsychiatry; 52(1):32-44 1982

Various psychological issues arising for pediatric oncology patients are examined and illustrated through case vignettes. Broad psychological issues are separation from loved ones, fear of loss of life, loss of control over one's environment and loss of a sense of competence. Impairment of mobility and activity, and periods of isolation are specific concerns in many hospital situations. Side effects, such as difficulty with nausea, change in eating patterns or intake of fluids, and constant bombardment with cares and procedures, present problems in adjustment which are as great as the illness itself. Social relationships are often greatly altered by disease, hospitalization, and treatment. A balance of independence and dependence appropriate to the child's developmental level must be reached in order to maintain self-control and feel competent in the world. Relevant interpersonal issues include effective team relations, consistency in nursing care, open discussion of the patient's condition, and interaction with other oncology patients. Fear of hair loss is often the most difficult adjustment issue for many children. Modulating the numbers of changes to a patient in a given time will often permit a more mature reaction to therapy. Family issues include adjustment time for parents, previous experiences with cancer, stresses of parental separation, and care of siblings. Realization of the cumulative significance of seemingly inconsequential specifics by the health care staff is necessary in the total care of the pediatric oncology patient. (10 Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

40. ENVIRONMENTAL FACTORS IN THE ETIOLOGY OF RHABDOMYOSARCOMA IN CHILDHOOD.

Grufferman S, Wang HH, DeLong ER, Kimm SY, Delzell ES, Falletta JM
Duke Univ. Medical Center, P.O. Box 2953, Durham, NC, 27710
JNCI; 68(1):107-113 1982

In a case-control study of childhood rhabdomyosarcoma (RMS), families of 33 case s and 99 controls were interviewed. A relative risk (RR) of 3.9 was found associated with fathers' (but not mothers') cigarette smoking ($P = 0.003$). Cases had had fewer immunizations than controls, particularly smallpox vaccination ($RR = 0.2$; $P = 0.001$), and conversely had more preventable infections. An RR of 3.2 ($P = 0.03$) was found associated with exposure to chemicals and an RR of 3.7 ($P = 0.004$) was found associated with diets that included organ meats. Mothers of cases were more likely to be over age 30 yr at subject's birth, to have used antibiotics preceding or during pregnancy, and to have had an overdue and/or assisted delivery. Other findings suggest that low socioeconomic status is associated with an increased risk of RMS. These aggregate findings imply that environmental factors may play an important role in the etiology of childhood RMS. (Author abstract) (21 Refs)

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AUTHOR INDEX WITH CITATION NUMBERS

kimova GV 24
rger P 4
rmstrong D 36
yala A 6
chmann KD 27
ehner RL 38
elasco J 4
rgolits VM 24
bro MC 31
laniuk LT 15
au HJ 23
ozzio A 34
racken RB 6
rown AE 36
ruce DA 15
runnquell D 39
arter D 31
hessells JM 28
hiba Y 13
bates TD 38
a Lage C 17
ash RJ 29
ash S 29
avis AE 36
eLong ER 40
elezoide AL 17
elzell ES 40
hont P 17
onaldson M 21
onaldson SS 37
ggers G 23
kert H 35
llis WM 35
remeev VS 24
alletta JM 40
avrot MC 34
errell RE 7
inne PH 20
arel L 12
ehan EA 2
ilchrist GS 10
reen AA 3
robe H 27
rosfeld JL 38
ross PA 36
rufferman S 40
rulich M 23
uarda L 6
uinand S 8
yenes G 33
all MD 39
amdouch M 12
Hammond GD 21
Han MT 10
Hartmann O 12
Harwood-Nash DC 1
Hays DM 2
Hedinger C 8
Houghton JA 3
Houghton PJ 3
Iwafuchi M 32
Jaffe N 6
Jankovic M 26
Kajtar P 25
Kardos G 25
Karolyi Gy 25
Keleti J 25
Kellick MG 36
Kenney PJ 14
Kimm SY 40
Koos R 25
Koss J 4
Kruse H 23
Kuwabara T 13
Lange BJ 4
Lawrence W 2
Littman P 21
Liu B 9
Locascіulli A 26
Luo S 18
Masera G 26
Matsuda Y 32
Maurer HM 2
McAlister WH 14
Menne R 27
Metz O 22
Miller DR 30
Miller DR 36
Moe PJ 20
Molnar S 25
Muller KM 27
Muto T 32
Nakajima F 13
Nayak GC 29
Nesbit ME 21
Neukam D 5
Neukam FW 5
Ninane J 28
Ohsawa Y 32
Ortega JA 21
Osipov SG 24
Pairolero PC 10
Pak S 13
Pal SR 29
Payne WS 10
Pfister A 17
Philip T 34
Philippe N 34
Plenert W 22
Post MJ 16
Pouyau G 34
Pritchard DJ 10
Provisor AJ 38
Raney R 4
Raney RB 2
Recchia M 26
Revesz T 25
Riccardi VM 7
Rickard KA 38
Robison LL 21
Rodgers BM 10
Rosenberg HK 4
Rossi MR 26
Rumiantsev AG 24
Salazar OM 19
Sather H 21
Sauvegrain J 12
Schulz M 23
Schut L 15
Schweisguth O 11
Scotti G 1
Seip M 20
Siegel MJ 14
Sim FH 10
Smoger BR 4
Souillet G 34
Soule EH 2
Steinherz PG 36
Stoll W 22
Sutow WW 6
Tauro GP 35
Tefft M 2
Telander RL 10
Touloukian RJ 31
Uderzo C 26
Vendrely E 17
Wang HH 40
Waters KD 35
Weetman RM 38
Wesley JR 10
Yagishita S 13
Yamashita Y 32
Yoshida K 32
Zimmerman RA 15
Zurlo MG 26

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-2
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 3
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 4
- NEUROBLASTOMAS AND CNS TUMORS..... 5-19
- LYMPHOMAS AND LEUKEMIAS..... 20-42
- OTHER SOLID TUMORS OF CHILDHOOD..... 43-47
- OTHER RELATED CLINICAL STUDIES..... 48-53

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. DIAGNOSTIC PROGRESS IN CHILDHOOD ORBITAL RHABDOMYOSARCOMAS.

Malbrel C, Talmud M
Service du Dr Burette, C.H.U. de Reims, Reims, France
Bull Soc Ophtalmol Fr; 81(8/9):597-599 1981

Three cases of orbital rhabdomyosarcoma in children (4, 4.5, and 9 yr old) are reported. The patients presented with ptosis and exophthalmos. In two cases, there was a history of trauma

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to the eye before the appearance of symptoms. In the third case, there was a history of recent dental abscess in the maxilla. In all cases, the symptoms evolved quickly once they appeared. Conventional radiographs did not reveal any opaque foreign body in the eyes. Computerized axial tomography helped establish the diagnosis and follow the post-treatment progress of the patients. Treatment included surgical excision of the tumors followed by chemotherapy and radiotherapy. Radiotherapy was particularly successful in controlling a recurrent tumor after the initial surgical treatment. Chemotherapy included vincristine, actinomycin D, and cyclophosphamide. Two patients were disease free (at 15 and 18 mo post-therapy) with no ocular defects. The other patients was disease free at 2 yr follow-up with some ocular problems associated with radiotherapy. The improved diagnostic techniques which led to the cures are stressed. (1 Ref) (In FRE)

2. BOTRYOID RHABDOMYOSARCOMA OF THE GALLBLADDER IN A CHILD.

Mihara S, Matsumoto H, Tokunaga F, Yano H, Ota M, Yamashita S
Dept. Pediatric Surgery, Kurume Univ. Sch. Medicine, 64 Asahi-machi, Kurume-shi, 830, Japan
Cancer; 49(4):812-818 1982

The first case of botryoid rhabdomyosarcoma of the gallbladder in a child is described and compared with previously reported cases from the world literature. Despite its rarity, rhabdomyosarcoma of the liver and biliary system should be considered when an obstructive jaundice is seen in children. Radical surgery with additional chemotherapy, and radiotherapy are necessary for long-term survival. (Author abstract) (39 Refs)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

3. EMBRYONAL CARCINOMA OF THE TESTICLE IN CHILDREN: REPORT OF 3 CASES.

Pinus J, Braz A, Okuyama MH, Fasano JC, Gulmini LC
Clinica de Cirurgia Pediatrica, Hospital do Servidor Publico Municipal, Sao Paulo, Brazil
Pediatr Mod (Sao Paulo); 16(6):275-278 1981

Three babies (6, 10, and 11 mo old) had surgery because of testicular tumors. Histologic examination indicated testicular embryonal carcinoma. All of the patients were in Stage II. Radiotherapy was administered after surgery in one case. The patients died a few mo after orchiectomy. Determinations of alpha-fetoprotein, luteinizing hormone, and follicle-stmulating hormone were recommended. The inguinal route should be used for surgery, and biopsy in situ must be avoided. (22 Refs) (In POR)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

4. IMAGING OF PRIMARY EWING SARCOMA WITH 13N-L-GLUTAMATE.

Reiman RE, Rosen G, Gelbard AS, Benua RS, Laughlin JS
Biophysics Lab., Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Radiology; 142(2):495-500 1982

Eleven patients with untreated primary Ewing sarcoma were studied with intravenously administered 13N-labeled L-glutamate. Seven were repeatedly scanned during chemotherapy using this agent and 99mTc-methylene diphosphonate (99mTc-MDP). The untreated primary tumor was distinctly visualized with 13N-L-glutamate in all cases; the distribution of 13N label in the tumor sometimes differed from that o f 99mTc. A kinetic study showed rapid uptake of 13N by tumor tissue. Repeat scans following therapy indicated that 13N-L-glutamate and 99mTc-MDP uptake showed changes consistent with histological findings following subsequent surgery. 13N uptake often decreased more markedly than 99mTc uptake during chemotherapy, but metastatic lesions were not visualized with 13N-L-glutamate. Tumor imaging with this labeled amino acid may be of value in assessing the response of primary Ewing sarcoma to chemotherapy. (Author abstract) (12 Refs)

NEUROBLASTOMAS AND CNS TUMORS

5. COMPUTED TOMOGRAPHY AS A SUPPLEMENT TO UROGRAPHY IN THE EVALUATION OF SUSPECTED NEUROBLASTOMA.

Siegel MJ, Sagel SS
Mallinckrodt Inst. Radiology, Washington Univ. Sch. Medicine, 510 South Kingshighway Blvd., St. Louis, MO, 63110
Radiology; 142(2):435-438 1982

Eleven children in whom a retroperitoneal neuroblastoma was suspected on the basis of plain radiographic or urographic findings underwent computed tomography (CT). CT identified and localized a neurogenic tumor in eight patients. Calcifications were demonstrated by CT in six lesions, but by urography in only four. One neuroblastoma detected by CT was not seen on the urogram; in five patients greater extent of the tumor was defined by CT than by conventional radiologic procedures. In three patients CT excluded a neuroblastoma, but diagnosed other disorders (hepatic tumor, pancreatitis, and retrocaval ureter). Our results confirm that CT is a simple and accurate method for diagnosis, delineation of extent, or exclusion of neuroblastoma. (Author abstract) (6 Refs)

6. MALIGNANT VERSUS BENIGN PARAVERTEBRAL WIDENING IN CHILDREN.

Ekiof O, Galatius-Jensen F, Damgaard-Pedersen K
Dept. Pediatric Radiology, Karolinska Sjukhuset, S-10401 Stockholm 60, Sweden
Pediatr Radiol; 11(4):193-201 1981

Dorso-medial pleural reflection line anomalies occur in malignant tumors, neuroblastoma being the commonest one, in benign tumors, spinal inflammatory disorders and in cases of pseudotumors of different origin. The latter group comprises normal structure variants, malformations and acquired disease

but also a small number of transitory or permanent lesions of uncertain or obscure origin. The radiological manifestations encountered are displacement, obliteration or blurring of the paraspinal, contour, sometimes a frank paravertebral mass. Based on a case material consisting of 65 patients the importance of recognizing this feature is stressed. An approach to clinical and radiological diagnosis is discussed. (Author abstract) (33 Refs)

7. EVALUATION OF NEUROPATHOLOGICAL CHANGES IN PERIPHERAL PARTS OF THE AUTONOMIC NERVOUS SYSTEM IN THE DIGESTIVE TRACT IN CHILDREN WITH NEUROBLASTOMA.

Jedrzejewska A, Kobuszewska-Faryna M
Zaklad Diagnostyki Patomorfologicznej, CMKP, ul. Ceglowska 80, 01-809 Warsaw, Po land
Pediatr Pol; 56(8):875-881 1981

Neuropathological analysis was carried out on the ganglia of the solar plexus and on the intramural ganglia of the digestive tracts of 17 children with neuroblastoma. Sixteen of the patients received chemotherapy and radiotherapy. All 17 patients died at the age of 7 wk to 15 yr. Involutive changes were found in the intramural ganglia in all patients on autopsy. Histochemical signs of increased amounts of catecholamines in the ganglia were seen in all children. The involutive changes were associated with the presence of large numbers of coarse chromophilic granules in the affected ganglia. The changes were independent of the location of the neoplasm and of the degree of destruction of the solar plexus ganglia by the neoplasm and of the segmentally occurring inflammatory changes. The neuropathological changes observed reflect the effects of the neurosecretory influence of the neuroblastoma, of the treatment employed and of the factors determined the neoplastic process. (16 Refs) (In POL)

8. HISTOLOGIC PATTERNS WITH PROGNOSTIC SIGNIFICANCE IN NEUROBLASTOMA.

Ceccamea A, Bonamico M, Napoleoni M
II Istituto di Anatomia ed Istologia Patologica, Universita di Roma, Viale Regina Elena 324, 00161 Roma, Italia
Tumori; 67(6):605-612 1981

The authors report the results of a statistical study on the correlations of survival in 41 children with neuroblastoma. After pointing out the significance of some clinical data, they emphasize the histological findings that may give an indication of the behavior of the tumor, ie the degree of differentiation and lymphocytic infiltration of the neoplastic tissue. Indeed, statistically significant differences were found between dead and surviving children as regards these findings (p less than 0.001). The authors also point out that the degree of cell differentiation is determined by the number of maturing cells and not by the number of completely mature cells (Author abstract) (21 Refs) (In ITA)

9. EVALUATION OF THE USEFULNESS OF DETERMINATION OF CONCENTRATIONS OF CATECHOLAMINES AND THEIR METABOLITES IN THE URINE OF CHILDREN WITH NEUROBLASTOMA FOR DIAGNOSTIC PURPOSES, CONTROL OF TREATMENT AND ITS RESULTS.

Prokopczyk J, Wankowicz B, Wenzel E
Zaklad Farmakologii, Instytut Matki i Dziecka, ul. Kasprzaka 17, 01-211 Warsaw, Poland
Pediatr Pol; 56(8):853-858 1981

The urinary adrenaline (A), noradrenaline (NA) dopamine (DA) and vanillylmandelic acid (VMA) levels were determined repeatedly at the time of diagnosis and during treatment in 67 children with neuroblastoma. At the time of diagnosis, the A levels were increased in 28.5% of the patients in Stage II, in 25% in Stage III and in 4% in Stage IV. The NA and DA levels were increased in 40-80.8% and 60-100% of the patients of all stages, respectively. The VMA levels were increased in 60-100% of the patients in Stages II-IV. The DA, NA and VMA or DA and VMA or the DA and NA excretions were correlated with the clinical condition in 38/67 patients, the DA excretion only in 13 patients, and the VMA excretion only in 1. The DA level was correlated with the clinical condition in 51/67 patients. The incidence of correlations between the DA, NA and VMA excretions on one hand and the clinical stages was highest in Stages IV, IVs and III. (5 Refs) (In POL)

10. STUDY OF CERTAIN PARAMETERS OF IMMUNE REACTIVITY IN CHILDREN WITH NEUROBLASTOMA.

Siwinska-Golebiowska H, Kunicka A, Borysewicz G, Nowakowska K, Smogorzewska E, Duros H, Perek D, Bozek J
Zaklad Immunologii, Instytut Matki i Driecka, ul. Kaspzaka 17, 01-211 Warsaw, Poland
Pediatr Pol; 56(8):889-896 1981

Certain parameters of cell-mediated and humoral immunity were determined repeatedly before and during treatment in 24 children with neuroblastoma. The reactivity of peripheral blood lymphocytes, the T and B cell counts, the spontaneous reduction of nitroblue tetrazolium, and the IgG, IgA, IgM, and IgD levels were determined. Before treatment, the humoral immunity was within normal limits or raised in most children, while the cell-mediated immunity, especially the lymphocyte reactivity, was somewhat decreased. Decreases in the parameters of cell-mediated immunity (especially in lymphocyte reactivity) were observed during treatment. The immunosuppressive effect of x-ray therapy was found to be much stronger than that of chemotherapy. The IgG, IgA and IgM levels decreased to normal values or to below twice the standard deviation during treatment. The decrease was most pronounced in the IgM levels. (20 Refs) (In POL)

11. NEUROBLASTOMA IN CHILDREN LESS THAN ONE YEAR OLD: PROGNOSIS AND TREATMENT.

Mello de Andrea ML, Giannotti Antoneli CB, De Camargo B, Ramirez C, Pizza M, Giannotti O, Bianchi A
Servico de Pediatria, Instituto Central Hosp. A. C. Camargo, Fundacao Antonio Prudente, Sao Paulo - S.P., Brazil
Pediatr Mod (Sao Paulo); 16(6):263-272 1981

Eleven children (5 male, 6 female; 45 days to 10 mo old) had neuroblastomas (NB) located in the suprarenal gland (6), the mediastinum (2), single inguinal nodes (1), the abdomen (1), or sc nodules (1). According to Evans' staging, two of the patients were Stage I, one was Stage II, and eight were Stage IV. Treatment consisted of surgery (SU) only (1), SU and chemotherapy (CT: 4), CT only (4), CT and radiotherapy (RT: 1), and SU + CT + RT (1). Metastases were present in seven of the patients. Survival times were 2-65 mo (Stage I patients, 23 and 32 mo; Stage II patient, 12 mo; and Stage IV patients, 2 mo, 3, 14, 15, 20, 32, 46, 62, and 65 mo). Aggressive use of the CT increased the possibility of infection and early death. Early diagnosis, precise staging, and adequate therapy individually suited to each patient were recommended. Cyclophosphamide (8 mg/kg) and vincristine (1.5 mg/square meter) were administered weekly in cycles of 6-8 wk, with 1 mo rest between the cycles until remission was achieved; at this time, surgery of the primary tumor could be performed. This CT protocol was

used in four patients and was tolerated well, without signs of toxicity. Use of radiotherapy in two of the patients decreased the sizes of the tumors and alleviated associated symptoms. (6 Refs) (In POR)

12. A RARE LOCALISATION OF NEUROBLASTOMA IN CHILDREN.

Djordjevic M, Stojicic G, Bunjevacki G
Klinika za otorinolaringologiju i maksilofacijalnu kirurgiju, Medicinskog fakulteta Univerziteta u Beogradu, Beograd, Yugoslavia
Srp Arh Celok Lek; 109(2):277-282 1981

Two girls (9 yr and 7 mo old) with neuroblastoma (NB) in the nasopharynx and nasal cavity were treated. The older girl, with difficulty in breathing and enlarged adenoids, had an adenoidectomy, but the difficulty in breathing persisted, a growth in the nasopharynx was observed and was diagnosed as NB. No enlargement of local lymph nodes was present. Radiotherapy (RT) of 4,000 rad in 20 sessions was administered. The NB disappeared, but 8 mo later relapse occurred in the right nasopharynx that did not react to additional RT (2,000 rad). Lung metastases were diagnosed, chemotherapy (CT) was administered, but the patient died. Pregnancy, before birth of the younger girl, was maintained with progesterone. The child was born with pronounced jaundice and a brown line across the nose. At 6 mo, a growth on the right side of nose, breathing difficulty and hematic discharge were noticed. The tumor was completely removed by lateral rhinotomy. Pathologic diagnosis was NB. RT with 1,800 rad was administered. Light anemia and increased sedimentation rate were noted. Parents removed the patient, but 6 mo later the patient returned with edema of the neck on the right side. Pathologic diagnosis confirmed metastases of NB in the lymph nodes, the CT was administered, but the patient died. (23 Refs) (In SCC)

13. INTRATHORACIC NEUROGENIC TUMORS. TREATMENT AND RESULTS OF 78 CHILDHOOD CASES.

Lemoine G, Montupet P, Baldeyrou P, Schweisguth O
Centre Medico-Chirurgical de la Porte de Choisy, 15, avenue de la Porte de Choisy, 75013 Paris, France
Ann Pediatr (Paris); 29(2):127-131 1982

A series of 78 thoracic neurogenic tumors derived from autonomic ganglia included 17 ganglioneuromas, 16 ganglioneuroblastomas, and 45 neuroblastomas. Treatment included surgery, chemotherapy, and radiotherapy. Surgery consisted of the widest possible resection of the tumor with posterior lateral thoracotomy. For large tumors, a double thoracotomy was sometimes necessary. Chemotherapy included vincristine, cyclophosphamide, and adriamycin. Radiotherapy varied from 25-35 grays according to patient age. The treatment was dictated by tumor type and extent. The 17 patients with ganglioneuroma were cured following surgical excision. Among the 61 patients who had malignant tumors, 14 died (11 neuroblastomas and 3 ganglioneuroblastomas) and eight had metastases. The survival time of the deceased children never exceeded 16 mo following tumor excision. The follow-up of the 47 surviving children who were treated for ganglioneuroblastoma or neuroblastoma was more than 2 yr for 45 children and was 5 yr for 26 children. No deaths occurred after 2 yr follow-up. The 2 yr survival rated was 74% for children with malignant tumors. (11 Refs) (In FRE)

14. INTRATHECAL CHEMOTHERAPY FOR LEPTOMENINGEAL DISSEMINATION OF MEDULLOBLASTOMA.

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Childs Brain; 8(6):444-451 1981

Thirteen children or young adults harboring medulloblastoma were treated for leptomeningeal dissemination by intrathecal administration of cytosine arabinoside (AR: 8 patients); AR + methotrexate (MT, 3 patients); and AR + MT + triethylene thiophosphamide (TE, 2 patients). Routes of administration were: 9 ventricular (Ommaya reservoir); 1 lumbar; and 3 both routes. The mean doses administered were 120.5 mg AR (range 36-256), 13 mg MT (range 6-24), and in two patients 170 and 60 mg TE. Patients received an av of 9.4 doses (range 3-23). Single complete responses with AR and TE were of short duration (13 and 4 wk, respectively); four of the patients receiving AR responded with stable disease, but two had received concomitant craniospinal reirradiation with misonidazole; one patient receiving TE exhibited stability of disease for 69 wk. MT produced two complete responses of 20 and 112 wk, but two of those receiving MT developed acute encephalopathy. No acute toxicity of AR or TE therapy was recognized. (14 Refs)

15. EXTERNAL VENTRICULAR DRAINAGE IN THE MANAGEMENT OF POSTERIOR FOSSA TUMORS IN CHILDREN AND ADOLESCENTS.

Papo I, Caruselli G, Luongo A, Epstein F
Divisione di Neurochirugia, Ospedale Generale Regionale, 60100 Ancona, Italy
Neurosurgery; 10(1):13-15 1982

Experiences with the use of external ventricular drainage (EVD) before and after posterior fossa operations in 62 children and adolescents (33 under 10 yr old) are described. The tumors were classified as medulloblastoma (30), astrocytoma (26), and ependymoma (6). The tumors were mainly in the midline (47; 34 within the cavity of the 4th ventricle, 13 in the vermian and paravermian region); the remaining tumors were purely hemispheric. Four patients required preoperative shunting, 3 required early postoperative shunting, and 11 required late postoperative (permanent) shunting. The appropriate use of preshunting is discussed, with particular reference to the cases of young children with midline tumors. (14 Refs)

16. SCINTIGRAPHIC INVESTIGATIONS IN CHILDREN WITH CENTRAL NERVOUS SYSTEM NEOPLASMS.

Kryst-Widzgowska T, Traczynska H
Zaklad Neuroradiologii, Instytut Psychoneurologiczny, Al. Sobieskiego 1/9, 02-957 Warsaw, Poland
Pediatr Pol; 56(8):897-901 1981

Brain scintigraphic examinations were performed in 82 children with verified CNS tumors. Thirty-seven children had supratentorial tumors, 45 subtentorial tumors. The scintigraphic findings were positive in 31/37 patients with supratentorial tumors: in 10/12 patients with tumors of the cerebral hemispheres, in 9/11 with tumors of the deep structures, in 7/9 with tumors of the optic chiasma, and in 5/5 with tumor of the suprasellar tumors. The scintigraphic findings were positive in 34/45 patients with subtentorial tumors: in 5/8 with tumors of the fourth ventricle, in 26/68 with tumors of the vermis cerebelli and cerebellar hemispheres, in 0/4 with tumors of the brainstem, and in 0/2 with tumors of nonspecific localization.

The findings indicate the high accuracy of scintigraphy in the diagnosis of tumors of the supratentorial region ad posterior cranial fossa and the limited usefulness of this method in the diagnosis of brainstem tumors. (8 Refs) (In POL)

17. ELECTROENCEPHALOGRAPHICAL-ANATOMICAL CORRELATION OF BRAIN TUMORS IN INFANCY AND CHILDHOOD.

Chiofalo N, Armengol V, Fuentes A, Olivares O, Madsen J, Vidal P
Instituto de Neurocirugia, Casilla 3717, Santiago, Chile
Childs Brain; 8(6):417-422 1981

Electroencephalography (EEG) of 198 brain tumors in children (5 mo-15 yr; 105 males, 93 females) revealed the following locations: hemispheric, 50 cases; basal and midline, 88; and posterior fossa, 60. EEG was abnormal in over 80% of the cases; posterior fossa tumors were most frequently associated with normal EEG (14%). Hemispheric tumors were most clearly located with EEG, with about 40% definitely localized and another 42% placed in the correct hemisphere. Basal-midline tumors were localized in 25% of the cases, and lateralized in another 30%. Posterior fossa tumors were rarely localized, and the correct hemisphere was identified in less than 20% of the EEGs. The main factors causing difficulties in EEG interpretation in children with tumors are: the high incidence of lesions located in basal nuclei and posterior fossa structures; the high incidence of hydrocephalus usually masking direct focal signs; and factors intrinsic to the normal maturation of the brain. (28 Refs)

18. CHILDREN WITH BRAIN TUMOR HEADACHES. DISTINGUISHING FEATURES.

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Dept. Pediatrics, Children's Hosp. Philadelphia, 34th and Civic Center Blvd., Philadelphia, PA, 19104
Am J Dis Child; 136(2):121-124 1982

We analyzed the history, physical examination findings, and skull roentgenograms of 72 children with headaches secondary to brain tumors to determine distinguishing features. Of 56 children, skull roentgenograms were abnormal in 54% (30). Abnormal findings from either the neurologic or ocular examination were present in 68 (94%) of these children at the time of brain tumor diagnosis. These abnormalities developed in 51 of 60 children (85%) within 2 mo of the onset of their headaches. Clues for earlier diagnosis were frequently present in those patients whose conditions were diagnosed more than 4 mo after the onset of their headaches. Recognition of those findings could have resulted in the diagnosis of brain tumor in 69 of 72 children (96%) within 4 mo of the onset of headaches. During the first 4 mo of headache complaints, children should be monitored closely. (Author abstract) (20 Refs)

19. COMPUTED TOMOGRAPHY IN VON RECKLINGHAUSEN'S DISEASE.

Maki Y, Enomoto T, Nose T, Maruyama H, Maekawa K
Dept. Neurological Surgery, Sch. Medicine, Univ. Tsukaba, Ibaraki 305, Japan
Childs Brain; 8(6):452-460 1981

Computed tomography (CT), using chiefly a Hitachi 1000, was used with 18 children (3-14 yr old) and 21 adults (15-64 yr old), with clinically diagnosed von Recklinghausen's disease, in an attempt to predict the development of CNS lesions in the future. Normal CT scans were obtained in 44.4% of the children, but in only 15.4% of the adults. Among the abnormalities found, intracranial tumors, bone abnormalities, and exophthalmos were more than twice as frequent in adults, whereas ventricular dilation and brain anomalies were more evenly distributed, but were still more frequent in adults. In general all anomalies except those of the brain were positively correlated with age. CT scan at puberty is suggested for possible early diagnosis of acoustic neurinoma. (10 Refs)

LYMPHOMAS AND LEUKEMIAS

20. A RANDOMIZED STUDY OF THE PREVENTION OF ACUTE GRAFT-VERSUS-HOST DISEASE.

Ramsay NK, Kersey JH, Robison LL, McGlave PB, Woods WG, Krivit W, Kim TH, Goldman AI, Nesbit ME
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N Engl J Med; 306(7):392-397 1982

A randomized trial was conducted comparing the effectiveness of methotrexate (MTX) alone with that of MTX plus antithymocyte globulin (AG) plus prednisone (P) for the prevention of acute graft-vs-host disease (GvHD) after allogeneic marrow transplantation. Twenty-seven patients had aplastic anemia, 17 acute lymphoblastic leukemia, 11 acute nonlymphocytic leukemia, 7 lymphoma, and 5 chronic myelogenous leukemia. Thirty-five patients received MTX alone (15 mg/square meter (m2) on Day 1 after transplantat ion, 10 mg/m2 on Days 3, 6, and 11, and the same weekly dose until 100 days after transplantation) and 32 received MTX + AG + P (MTX as in the first group; 15 mg/kg of body wt AG on Days 8, 10, 12, 14, 16, 18, and 20, iv; and 40 mg/m2 P, po, on Days 8-20). At 100 days, 79% of patients given MTX + AG + P were free of acute GvHD, compared with 52% of those given MTX alone. Of those with aplastic anemia, 46% treated with MTX alone had acute GvHD compared with 18% treated with MTX + AG + P. Of those with malignant disease, 50% given MTX alone and 23% given MTX + AG + P had acute GvHD. Chronic GvHD occurred in five patients with no history of acute GvHD; three had received MTX alone and two had received MTX+AG+P. Other than treatment regimen, the recipient's age was the only factor associated with acute GvHD; GvHD rarely occurred in children less than 12 yr old. Patients without acute GvHD had significantly better survival than those with acute GvHD. Leukemic relapse occurred in five patients who received MTX alone and in four who received MTX + AG + P. Thus, the addition of AG + P to MTX significantly reduced the incidence of GvHD in these patients. (16 Refs)

21. ACUTE MEGAKARYOBLASTIC LEUKAEMIA ASSOCIATED WITH INTRINSIC PLATELET DYSFUNCTION AND CONSTITUTIONAL RING 21 CHROMOSOME IN A YOUNG BOY.

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Br J Haematol; 50(2):191-200 1982

A 3-yr-old boy with pancytopenia and a paucity of circulating blast cells was found to have acute megakaryoblastic leukemia. Histopathologic investigation of the bone marrow biopsy disclosed replacement by megakaryoblasts and mild-to-moderate reticulin fibrosis. The megakaryocytic origin of these cells was confirmed by their staining properties and by cross-reac-

tivity with rabbit anti-rat platelet serum. Treatment with adriamycin and cytosine arabinoside induced a complete remission of this otherwise rapidly fatal disease. Before chemotherapy, the patient's platelets showed decreased aggregation in response to thrombin and adenosine diphosphate, as well as a defective thrombin-induced serotonin release reaction. Neither functional defect resolved after remission induction, indicating that the platelets were intrinsically abnormal. Most striking was the finding of a constitutional chromosomal defect, a ring No 21 chromosome, in addition to an abnormal malignant stem line. This appears to be the first reported instance of a constitutional r(21) chromosome associated with acute leukemia. (Author abstract) (31 Refs)

22. VINCRISTINE AND PREDNISOLONE THERAPY IN BLAST CRISIS OF CHRONIC MYELOGENOUS LEUKAEMIA IN CHILDHOOD.

Kano Y, Takaku F, Sakamoto S, Hida K, Kasahara T, Okamura J, Hasegawa K, Tsukada T, Sasaki H
Dept. Hematology, Jichi Medical Sch., 3311-1 Minimikawachi-Machi, Tochigi 329-04, Japan
Scand J Haematol; 27(5):323-326 1981

Six cases of chronic myelogenous leukemia (CML) blast crisis in childhood were treated with vincristine and prednisolone (V-P). In three terminal transferase (TdT)-positive cases, blast cells were lymphoid in appearance. All three TdT-positive patients entered a complete remission but developed meningeal leukemia. The mean duration of survival from the onset of blast crisis was 32 mo. In three TdT-negative cases, V-P therapy was ineffective. The results of this study suggest that V-P therapy is more effective for CML blast crisis in childhood with TdT positive blast cells and that prophylactic central nervous system treatment is necessary to prevent meningeal leukemia. (Author abstract) (9 Refs)

23. PROGRESS IN PREVENTION OF LEUKEMIA SPREADING TO THE CENTRAL NERVOUS SYSTEM IN ACUTE LYMPHOBLASTIC LEUKEMIA.

Pavlovsky S, Garay G, Scaglione C, Fisman N, Dupont J
Departamento de Oncohematologia, Instituto de Investigacion 'Dr. M. R. Castex', Academia Nacional de Medicina, Buenos Aires, Argentina
Bol Acad Nac Med; 59:85-95 1981

Two protocols were evaluated with respect to preventing the invasion of the CNS by leukemia in patients with acute lymphoblastic leukemia. Protocol 10-LLA-72, started in October 1972 and terminated in December 1975, consisted of vincristine (VCR) and prednisone (PRED), with addition of daunomycin when no remission (RE) was obtained with the VCR and PRED. After the patients were in RE for 28 days, radiotherapy (RT: 2,400 rad) was administered during a period of 3 wk, with intrathecal (IT) methotrexate (MTX) and dexamethasone (DMT) twice a wk for five cycles; the patients were then divided in two groups, one (175 patients) receiving IT MTX-DMT every 3 mo, the other (181 patients) serving as a control receiving the IT MTX-DMT. Both groups received 6-mercaptopurine and MTX po as maintenance and VCR-PRED every 3 mo. Protocol 1-LLA-76, started in January 1976 and terminated in December 1978, also was described. Two groups of 18 patients each, one with and the other without RT, both 36 mo after the prevention therapy of CNS and in complete RE, were evaluated neuropsychologically. After the RT and five doses of IT MTX, additional administration of the IT MTX did not decrease the incidence of leukemia in the CNS. No significant difference in results was observed in the patients receiving IT MTX, either with or without RT, but the time of RE was longer in the patients that did not receive the RT. The patients receiving IT MTX and RT showed a significantly higher incidence of changes in cranial computed tomography, psychometry, and intellectual coefficient; these changes were more prominent in children greater than 5 yr old at time of diagnosis. (28 Refs) (In SPA)

24. THYMIC CHANGES IN HISTIOCYTOSIS.

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Am J Clin Pathol; 77(2):169-173 1982

In order to arrive at a hypothesis of the pathogenesis of thymic changes in histiocytosis, the thymus glands from 32 children with histiocytosis were studied. In general, the changes were a severe loss of cortical and medullary structures rather than stress type changes in which only the cortical structure changes. The thymic changes were then classified into three main groups: severe dysplasia equivalent to that seen in congenital immune deficiency, severe nonspecific involution, and a third group designated as a dysmorphic type which resembled those with dysplasia, but, in addition, showed smaller lobules and interstitial histiocytic infiltration. The thymic changes correlated with the type of histiocytic disease. For the purposes of this study, the disease was categorized as Type I or Type II, as previously described. Dysplastic changes were only seen in those patients with Type I histiocytic disease, while involution occurred in patients with Type II histiocytic disease. Dysmorphic change was apparent in both, but it had a much higher incidence in Type II. (Author abstract) (34 Refs)

25. TRIALS OF IMMUNOSTIMULATION WITH LEVAMISOLE IN CHILDREN WITH MALIGNANT NEOPLASMS.

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Pediatr Pol; 56(9):1065-1070 1981

Trials of immunostimulation with levamisole (2 mg/kg/day po on 2 consecutive days of the wk, for 12 wk) were carried out in 14 children with acute lymphoblastic leukemia (ALL), 5 adults with Hodgkin's disease (HD), 1 with non-Hodgkin lymphoma, one child with hemolytic anemia and another with Wissler-Fanconi syndrome. Frequent respiratory infections of considerable severity were the indications of levamisole treatment. Six children with ALL (Group 1) were treated during remission without treatment, nine others (Group 2: eight patients with ALL and one with NHL) were treated during chemotherapy. Four out of five patients in Group 3 were in remission without treatment, the fifth was treated with levamisole during chemotherapy. The E rosette tests and determinations of the leukocyte, granulocyte and lymphocyte counts before and after levamisole treatment showed that patients with impaired cell-mediated immunity and reduced initial E rosette test values benefitted most from the levamisole therapy. Levamisole treatment was found to stimulate the granulocytes, but its effect on other laboratory parameters was less evident. The levamisole treatment reduced the frequency of infections and alleviated their course considerably. No side-effects were observed. The findings indicate that levamisole can be used as a supplement of cytostatic therapy in patients with neoplasms. (23 Refs) (In POL)

26. PROGNOSTIC SIGNIFICANCE OF THE PAS REACTION IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

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Pediatr Pol; 56(9):1009-1015 1981

The prognostic significance of the PAS reaction of bone marrow cells was studied in 71 untreated children (8 mo to 16 yr old) with acute lymphoblastic leukemia (ALL) during the initial phase of the disease before intensive polychemotherapy and preventive cranial irradiation. The PAS scores av 52.7 (0-245 scores). The av PAS scores were 29.3 for the 28 patients with remissions lasting 2 yr or less and 94.0 for the 26 patients with remissions lasting more than 2 yr. The av PAS scores were 31.8 for the 22 childen who survived less than 2 yr and 92.0 for the 16 children who survived more than 3 yr. The differences in the PAS scores were statistically significant between the patients with short and long remission and between those surviving more than 3 yr and less than 3 yr. The av PAS scores were 73.1 in the 36 patients with initial leukocyte counts of 10,000/cubic mm (mm3) or less, 38.6 for the 19 patients with 10,000-49,999/mm3 and 22.6 for the 16 patients with 50,000/mm3 or more. The findings indicate that strongly positive PAS reaction of bone marrow cells is a favorable prognostic sign in children with ALL. (21 Refs) (In POL)

27. HODGKIN'S DISEASE IN CHILDREN: LONG-TERM THERAPEUTIC RESULTS.

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Bull Cancer (Paris); 68(5):456-464 1981

Between 1965 and 1976, 83 previously untreated children aged 15 yr and under, with biopsy-confirmed Hodgkin's disease were assessed, treated, and followed-up at the Hospital Saint-Louis, in Paris. Clinical stages were IA-IIA for 59, IB-IIB for 19, and III-IV for 5 patients. Two main types of treatment were used: monochemotherapy-radiotherapy in 26 patients who received mantle field irradiation followed by monthly vinblastine injections for 3 yr; 57 patients received a combination of MOPP and radiotherapy. The MOPP-radiotherapy treated patients have a significantly better survival and relapse-free survival than the monochemotherapy-radiotherapy treated patients (86.9% vs 76.1% and 83.5% vs 65.4%). Thirteen relapses were observed after a median complete remission period of 30 mo: 6 patients are now free from disease and 1 is still under treatment. Ten patients died after a 55 mo median survival: 7 died from Hodgkin's disease and 3 from treatment toxicity. No secondary cancer or leukemia has been observed. The main long-term complications of therapy were sterility in male patients, after chemotherapy, and growth defects and disturbances of thyroid functions after radiotherapy. (Author abstract) (47 Refs) (In FRE)

28. THE LONG-TERM OUTLOOK FOR CHILDREN TREATED FOR NON-HODGKIN LYMPHOMAS. A REPORT OF THE CHILDREN'S SOLID TUMOR GROUP.

Goldman A, Barrett A, Bloom HJ, Graham-Pole J, Lawson DN, McElwain TJ, Malpas JS, Pritchard J, Sandland R
St. Bartholomew's Hosp., Smithfield, London EC1, England
Br J Cancer; 44(6):872-878 1981

Twenty-nine children with non-Hodgkin's lymphomas (NHL) were treated between 1974 and 1977 with a protocol based on those used for childhood ALL. Seventy-six per cent of patients had advanced disease by Ann Arbor criteria. All tumors had Rappaport's diffuse histology. Nineteen patients (65%) achieved complete remission, 14 (65%) remained alive and disease free beyond 42 mo from diagnosis. Ten patients failed to enter complete remission, of whom all died. Seven patients relapsed; five died, two remain disease free and off treatment in 19 and 29 mo. Comparison with a historic group of 20 consecutively treated children shows improved survival (p less than 0.01). Eighteen controls died. Histology was reviewed using the Kiel classification and staging according to Murphy's criteria. These are compared with the methods used initially. The improved outlook for children with NHL using intensive multiple drug regimes and cranial prophylaxis is confirmed. In staging childhood NHL, Murphy's criteria, which take into account the natural history of the disease, have greater prognostic value. Histology and pattern of outcome of the disease suggest basic differences between primary abdominal and primary mediastinal and nodal disease. This is now being confirmed with immunological typing and will be reflected in the development of future protocols. (Author abstract) (8 Refs)

29. IMMUNOGLOBULINS IN THE CEREBROSPINAL FLUID OF CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

Kubiczek K, Cyklis R, Wlodek B, Amborska H
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Pediatr Pol; 56(9):1053-1058 1981

Immunoglobulin and albumin levels were determined in the cerebrospinal fluid of 15 children (3-7 yr old) with acute lymphoblastic leukemia and of 36 healthy controls. The IgG levels were increased in more than 50% of the patients, the albumin levels were increased in 2/15 patients. Trace amount of IgM without increased IgG and albumin levels was found in 1/15 patient. IgA was not found in the cerebrospinal fluid of any of the patients. The mean IgG levels were 1.76 mg% in the patients and 0.94 mg% in the controls; the albumin levels 12.5 mg% and 8.8 mg%, respectively, and the relative IgG levels 16.0% and 10.1%, respectively. All three differences were statistically significant. Increased permeability of the blood-brain barrier for IgG and serum albumin was demonstrated in some of the patients. The possibility of active immune reactions in the nervous system with local production especially of IgG was demonstrated in more than 25% of the patients. (25 Refs) (In POL)

30. ACUTE LYMPHOCYTIC LEUKEMIA IN CHILDREN: CURRENT APPROACH IN TREATMENT AND EXPERIENCE AT CHILDREN'S INSTITUTE.

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Pediatr S Paulo; 3(4):296-303 1981

Forty-eight children (22 male, 26 female; 1 mo to 13 yr old) with acute lymphocytic leukemia (ALL) were evaluated after receiving protocol VIII of St. Jude Children's Research Hospital of Memphis, TN. Induction therapy (IT) lasts 28 days and consists of vincristine, prednisone, and L-asparaginase. Prophylaxis therapy of the CNS lasts 2.5 wk and includes cranial radiotherapy (2,400 rad) simultaneously with intratheçal administration of methotrexate (MTX). Maintainance therapy (MT) is administered 30 mo after uninterrupted remission (RE) and

consists of 6-mercaptopurine, MTX, and cyclophosphamide. Hemograms were obtained weekly; other tests were performed less frequently. Of seven patients considered to be at high risk, four died due to bronchopneumonia before or during the IT, while three reached RE (1 had RE for 24 wk, followed by septicemia and death; 1 abandoned treatment; and 1, at the time of this report, had been in RE for 22 wk). Of 32 patients considered to be at basic risk, 14 died before or during the IT while 18 achieved RE in 4 wk. Six patients remain in initial remission after 18, 20, 42, 49, 94, and 100 wk. Three patients had relapses and are presently in the MT. Eight patients abandoned the treatment. Treatment of the ALL and selection of proper protocol should be established on a nation-wide basis. (15 Refs) (In POR)

31. EFFECT OF CENTRAL NERVOUS SYSTEM RADIOTHERAPY IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA ON LYMPHOCYTE SUBPOPULATIONS AND INDICATORS OF LEUKOCYTE MIGRATION INHIBITION IN THE PERIPHERAL BLOOD.

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Klinika Pediatrii, Sl. AM, ul. 3 Maja 13/15, 41-800 Zabrze, Poland
Pediatr Pol; 56(9):1003-1007 1981

The effects of polychemotherapy and prophylactic cranial irradiation (total dose 2,400 rads) on peripheral blood lymphocyte subpopulations and on leukocyte migration inhibition were studied in 17 children (15 mo to 17 yr old) with null-cell acute lymphoblastic leukemia compared with 30 healthy controls. During remission after induction chemotherapy but before cranial irradiation, the percentages of T, B and null cells were 23.70%, 18.58% and 60.60%, respectively, compared with 64.45%, 23.73% and 10.8% in the controls. The decreases in the T and B cell counts and the increase in the null cell counts compared with the controls were statistically significant. The leukocyte migration indices were 0.833-0.938 vs 0.419-0.625 in the controls. After cranial irradiation the percentages of T, B and null cells were 20.25%, 12.5% and 65.10%, respectively, and the leukocyte migration indices were 0.881-0.887. The depressive effect of the irradiation affected mostly the B cells, and caused no significant changes in the leukocyte migration inhibition. (27 Refs) (In POL)

32. HYPOTHESIS: THE ENVIRONMENT IS A MAJOR DETERMINANT OF THE IMMUNOLOGICAL SUB-TYPE OF LYMPHOMA AND ACUTE LYMPHOBLASTIC LEUKAEMIA IN CHILDREN.

Ramot B, Magrath I
Dept. Haematology, Chaim Sheba Medical Centre, Tel Aviv Univ. Medical Sch., Tel Aviv, Israel
Br J Haematol; 50(2):183-189 1982

Based on a study of socioeconomic status, the ratio of leukemia to lymphoma, occurrence of their subtypes, acute lymphoblastic leukemia (ALL) in American blacks, and the early age-peak of ALL, a hypothesis is presented that the pattern of lymphoid malignancy in children is dependent on environment and particularly on socioeconomic circumstances. In the most economically underprivileged, ie in equatorial Africans, B-cell lymphomas predominate, leukemia is rare, and ALL may be entirely of the T-cell type. In populations of intermediate economic status, ie in American blacks and Israeli Arabs, B-cell lymphomas are infrequent and the spectrum of lymphoma varies according to the particular local mosaic of environmental and/or genetic factors. In the highest, socially privileged class, ie American whites and Europeans, ALL has a high incidence and is the most common malignant disease in children. (33 Refs)

33. AN ULTRASTRUCTURAL AND IMMUNOHISTOCHEMICAL STUDY ON MANDIBULAR LESION OF LETTERER-SIWE DISEASE.

Ide F, Sano R, Shimura H, Kusama K, Umemura S
Dept. Pathology, Nihon Univ. Sch. Dentistry, 1-8-13, Surugadai Kanda, Chiyoda-ku, Tokyo 101, Japan
J Oral Pathol; 10(6):386-397 1981

Ultrastructural and immunohistochemical features of Letterer-Siwe disease from the mandible of a 1-yr-old boy are reported. Two types of cells were revealed: Langerhans cell granule-containing cells and ordinary histiocytes. The former were related to the cytoplasmic membrane. The variable number of granules was probably due to differences in cell maturation and functional activity of clear cells. The ordinary histiocytes stained darkly and had numerous lysosomes and phagosomes and did not contain Langerhans cell granules. Most proliferating cells with indented nuclei and multinucleated giant cells were negative for lysozyme, while polymorphonuclear WBC were strongly positive. IgG was detected in some proliferating cells without peculiar nuclei, but cytoplasmic IgM, IgA, IgD, and IgE were not detecte d. Most cells with indented nuclei were negative for immunoglobulins. These findings and those in the literature suggest that histiocytosis X might be a reactive or tumorous condition in which the Langerhans cell is the stem cell. The ordinary histiocytes may be the ultrastructural counterpart of the lysosome-rich cells without Langerhans cell granules and the Langerhans cell granule-containing cells may be the counterpart of the acid phosphatase-, esterase, and lysozyme- negative cells which may be important in the pathogenesis of histiocytosis X. (40 Refs)

34. HEMOSTASIS SYSTEM IN CHILDREN DURING TREATMENT FOR ACUTE LEUKEMIA AND LYMPHOMA.

Czerchawski L, Raus Z, Kotschy M, Boguslawska-Jaworska J
Zaklad Patofizjologii, AM, ul Marcinkowskiego 1, 50-368 Wroclaw, Poland
Pediatr Pol; 56(9):1021-1029 1981

The status of plasma and platelet hemostasis was studied in 71 children (48 boys and 23 girls, 1-16 yr old) with acute lymphoblastic leukemia (ALL), acute myeloid leukemia (AML) or malignant lymphoma (ML) and in 20 healthy controls. Before treatment, the prothrombin times were 41 sec in the patients with ALL, 37 sec in those with AML, 86 sec in those with ML and 35.5 sec in the controls. The thrombokinase activity, determined according to the Biggs-Douglass method, was 7.5-9.5 in the patients and 9.1 in the controls. The basal thrombin production was 17-28.4 in the patients and 0.5 in the controls. The prothrombin level was 78-86% in the patients and 90.7% in the controls. The fibrinogen level was 2.4-2.9 g/liter in the patients and 2.8 g/liter in the patients. The fibrinolysis time was greater than 4 hr in the patients and 210 min in the controls. The platelet levels were 53 g/liter in the patients with ALL, 50 g/liter in those with AML, 107 g/liter in those with ML, and 160 g/liter in the controls. In the patients with ML impairment of platelet hemostasis was associated with decreased prothrombin level and disturbances in thrombokinase production. Treatment led to normalization of the platelet count and platelet function in the leukemia patients without always restoring normal plasma hemostasis. Treatment led to

normalization of the platelet and plasma hemostasis in the normalization of the platelet and plasma hemostasis in the lymphoma patients. Recurrences were associated with changes in the clotting system analogous to those observed at the beginning of the disease. (18 Refs) (In POL)

35. DISSEMINATED INTRAVASCULAR COAGULOPATHY AND POLYCHEMOTHERAPY OF PROLIFERATIVE DISEASES OF THE HEMOPOIETIC SYSTEM.

Kaczmarek M

I Klinika Chorob Dzieci, Instytut Pediatrii AM, ul. Szpitalna 27/33, 50-572 Poznan, Poland

Pediatr Pol; 56(9):1031-1037 1981

Five clottings tests were carried out in 36 children with proliferative hematological diseases associated with increased leukocyte count and/or high-grade progression of the malignant pr ocess and in 20 healthy controls to detect disseminated intravascular coagulopathy (DIC). Acute lymphocytic leukemia (ALL) was diagnosed in 17 patients, acute myeloid leukemia (AML) in 7, acute promyelocytic leukemia (APL) in 4, Hodgkin's disease (HD) in 2 and non-Hodgkin's lymphoma (NHL) in 6. The patients with ALL were treated with vincristine (VCR) and rubidomycin (RBC) or with VCR and adriamycin. The patients with AML were treated with VCR and RBC or cytosine arabinoside. The patients with HD were treated with the combination of four and five drugs, respectively. DIC was not found in any of the 36 patients before therapy. Three patients (1 each with ALL, AML and malignant lymphoma) developed DIC after the beginning of the treatment. Primary fibrinolysis, seen in three patients with APL already before the treatment, became more pronounced during chemotherapy. (19 Refs) (In POL)

36. IMMUNOGLOBULIN E IN CHILDREN WITH LEUKEMIA AND MALIGNANT LYMPHOMA.

Chmielewska D, Gutkowska J, Matysiak M

Klinika Hematologii i Pneumologii, IP AM, ul. Dzialdowska 1, 01-184 Warsaw, Poland

Pediatr Pol; 56(9):1059-1064 1981

The serum IgE levels were determined in 120 children (3 mo to 16 yr old) with acute lymphoblastic lymphoma (104 patients), Hodgkin's disease (8) and non-Hodgkin's lymphoma (8). Elevated IgE levels were found in 6/104 patients with leukemia. This incidence (5.7%) is not higher than that which may occur in the general population. The IgE levels were also elevated in 1/8 patients with non-Hodgkin's lymphoma and in 2/8 with Hodgkin's disease. E rosette tests were performed in vitro once or several times in 34 of the patients. The results of the E rosette tests were disturbed in over half the tested patients with leukemia. The values of the rosette tests were below 30% in nearly one third of the patients. Lymphocyte stimulation tests with thymus factor X were performed in 36 patients. Stimulation led to a rise in the percentage of rosette-forming lymphocytes in 29/36 patients. No correlation was found between the IgE levels and reduced value of the rosette test. (27 Refs) (In POL)

37. THERAPEUTIC RESULTS IN CHILDREN WITH NON-HODGKIN'S LYMPHOMA TREATED ACCORDING TO THE STANDARD PROTOCOL (LSA2L2).

Ochocka M, Newecka-Samol T, Ciepielewska D

Klinika Hematologii i Pneumologii, IP AM, ul. Dzialdowska 1/3, 01-184 Warsaw, Poland

Pediatr Pol; 56(9):1071-1077 1981

The results of chemotherapy of 16 children (12 boys and 4 girls, 1-14 yr old) with non-Hodgkin's lymphoma (NHL) are reported. Lymphoblastic B-cell lymphoma was diagnosed in four patients, lymphoblastic T-cell lymphoma in two, immunoblastic lymphoma in three, convoluted lymphoblastic lymphoma in one, Burkitt's lymphoma in three, malignant histiocytosis in one, type U NHL in one and other NHL in one. Two patients were in Stage I, two in Stage II, four in Stage III and four in Stage IV. Remission induction therapy consisted of cyclophosphamide (CP: 1,200 mg/square m (m2), day 1), prednisone (PR: 60 mg/m2, days 3-31), vincristine (VCR: 1.5-2.0 mg/m2, days 3, 10, 17 and 24), methotrexate (MTX: 6.25 mg/m2 intrathecally, days 5, 27 and 30), and rubidomycin (RBC: 60 mg/m2, days 12 and 13). Consolidation therapy, started 3-5 days after remission induction therapy, consisted of cytosine arabinoside (ara-C: 150 mg/m2 iv on 5 consecutive days of the wk for 4 wk), 6-thioguanine (6-TG: 75 mg/m2 po according to same schedule as ara-C), L-asparaginase (60,000 U/m2 iv), and lomustine (60 mg/m2 iv). Maintenance therapy consisted of 6-TG, CP, RBC, MTX, VCR and ara-C. The patients were followed up for 1-40 mo. The fate of one patient is unknown. Seven children died within 1-10 mo (av 4.5 mo): the cause of death was dissemination of the malignant process in four cases, associated complications in three. The other eight patients have been alive for 1-40 mo (av 13.5 mo). Six of these eight patients are in continuing remission, one is alive with recurrence, and another is under remission induction therapy. The most severe side-effects included bone marrow depression with pronounced leukopenia and granulocytopenia. The findings indicate that the LSA2L2 protocol used is very aggressive but prolongs survival. (13 Refs) (In POL)

38. FIBRINOGEN DEGRADATION PRODUCTS IN THE CEREBROSPINAL FLUID OF CHILDREN WITH ACUTE LYMPHOCYTIC LEUKEMIA.

Borkowski W, Kolanowska H, Depowska T, Kaczor Z

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Pediatr Pol; 56(9):1017-1020 1981

The fibrinogen degradation product (FDP) levels in the cerebrospinal fluid were determined in 60 children (15 mo to 13 yr old) with acute lymphoblastic leukemia and in 6 controls free from neoplasms and inflammatory diseases. The FDP levels were determined during the initial phase of the disease before treatment in 6 patients, during the first remission in 56 and during CNS leukemia in 8. All patients were subjected to intensive polychemotherapy and preventive cranial irradiation (total dose 2,400 rads in 52 cases, 1,200 rads in 8). The FDP levels were increased significantly during the initial phase of leukemia and during hematological remission compared with the controls ($p < 0.001$ and $p < 0.05$, respectively), but the av FDP level was not increased in the patients with CNS leukemia, even though the absolutely highest levels (approx 3 and 5 ug/ml) were measured in these patients. (17 Refs) (In POL)

39. CHANGES OF CEREBRAL BIOELECTRIC ACTIVITY IN CHILDREN WITH ACUTE LEUKEMIA.

Sroczynska M, Szymanska-Krupa I, Sonta-Jakimczyk D, Wojcik Z, Franiczek W
Klinika Pediatrii, Instytut Pediatrii Sl. AM, ul. 3 Maja 13/15, 41-800 Zabrze, P oland
Pediatr Pol; 56(9):1047-1052 1981

Electroencephalographic changes were studied in 73 children (2-16 yr old) with acute leukemia during different phases of the disease on the basis of 120 electroencephalograms (EEGs). Acute lymphocytic leukemia was diagnosed in 63 patients, acute myeloblastic leukemia in 6 and leukosarcoma in 4. Fifty-one patients were examined during remission induction therapy: the EEGs were normal in 27 cases, border-line in 11 and abnormal in 13. The bioelectric changes were followed up in 18 patients after prophylactic cranial irradiation and intrathecal administration of methotrexate (MTX). The EEGs were normal before and abnormal after the prophylactic treatment in 4/18 patients, normal both before and after the treatment in 5/18, abnormal both before and after treatment in 5/18, and abnormal before and normal after the treatment in 4/18. Thirteen patients, 5 of whom had been subjected to intracranial irradiation, and 8 to irradiation and MTX treatment, developed CNS leukemia. The EEGs of 12/13 children were normal in the course of the therapy. Seven of these 13 were examined after treatment: the EEGs were normal in 3/7 cases, abnormal in 2, and showed improvement in 2. The changes observed at the beginning of the disease were related to cerebral hypoxia due to anemia or hemorrhagic diathesis. The changes seen after prophylactic treatment were found to be reversible in some of the patients. The abnormal EEGs seen during maintenance therapy were believed to be associated with the side-effects of vincristine used for reinduction therapy. (13 Refs) (In POL)

40. DYNAMICS OF ELECTROENCEPHALOGRAPHICAL CHANGES IN CHILDREN WITH ACUTE LEUKEMIA: CLINICAL-HEMATOLOGICAL CORRELATIONS.

Sidor K, Traczewska M
Klinika Hematologii i Pneumologii, Instytut Pediatrii Akademii Medycznej, ul. Dzialdowska 1, 01-184 Warsaw, Poland
Pediatr Pol; 56(9):1039-1046 1981

Correlations between the electroencephalograms (EGGs) and the clinical course of the disease were studied in 75 children (8 mo to 14 yr old) with acute leukemia on the basis of 100 EEGs. The EEGs of 42 patients were normal: they included 41 patients with acute lymphoblastic leukemia (ALL) and 1 with acute myeloblastic leukemia (AML). Thirty-nine of these 42 patients were in the initial phase of the disease, before treatment. None of the 42 patients had CNS involvement. Twenty-three of the 42 patients died during the initial phase of the disease. Generalized changes were seen in the EEGs of 17 patients (15 with ALL and 2 with AML). Eight of the 15 patients with ALL were in the initial phase of the disease, the 7 others had the first CNS involvement. Changes in the temporo-occipital region were seen in the EEGs of five children (4 with ALL and 1 with AML). Two of these five patients were in the initial phase of the disease w ithout CNS involvement, the three others, including the patient with AML, hematological and CNS recurrences. Focal changes and asymmetry were seen in the EEGs of three children with CNS involvement in serious condition. All three patients died during CNS involvement despite intensive chemotherapy. The findings indicate the existence of significance correlation between the changes in the EEG and the clinical condition of the patients. The changes seen in the patients with severe CNS involvement corresponded to those seen in patients with meningoencephalitis of other etiology. No correlation was seen between the EEG changes and changes in the cerebrospinal fluid. (16 Refs) (In POL)

41. TERMINATION OF INTENSIVE POLYCHEMOTHERAPY IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

Michalewska D, Radwanska U, Duczmal B
I Klinika Chorob Dzieci, Instytut Pediatrii AM, ul. Szpitalna 27/33, 60-572 Poznan, Poland
Pediatr Pol; 56(8):909-914 1981

Intensive maintenance polychemotherapy was terminated after 2.5-3 yr in 72/353 children with acute lymphoblastic leukemia. All patients had been subjected to preventive cranial irradiation. Sixty-two of the 72 patients have remained in first remission: 31 have been in first remission for 5-12 mo, 15 for 12-24 mo, 9 for 24-36 mo, and 7 for more than 36 mo. The 10 other patients (4.3 mo to 10.2 yr) developed recurrence 5-14 mo after the termination of the maintenance chemotherapy. Two of these 10 patients had poor prognosis at the time of diagnosis. The recurrence involved the brain in one patient, the bone marrow in seven, the testicles in one, and the testicles and bone marrow in one. Nine of the 10 patients who developed recurrence were among the 45/72 patients who had been subjected to remission induction therapy with vincristine (VCR) and prednisone (PR), and the 10th patient was one of the 27/72 patients who had been subjected to induction therapy with the combination of VCR, PR and Rubidomycin. Two of the 10 patients achieved second remissions, the two others died. (23 Refs) (In POL)

42. COMPARISON OF THE THERAPEUTIC RESULTS IN CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA AS A FUNCTION OF THE THERAPEUTIC METHOD.

Derulska D, Rokicka-Milewska R, Skrobowska-Wozniak A, Makowska K, Kansy J
I Klinika Ogolnopediatryczna, Instytut Pediatrii AM, ul. Marszalkowska 24, 00-576 Warsaw, Poland
Pediatr Pol; 56(9):985-992 1981

Three different chemotherapy protocols were compared in the treatment of 111 children with acute lymphoblastic leukemia. Fifty-seven children (Group A: 31 boys and 26 girls, 8 mo to 15 yr old) were subjective to intensive polychemotherapy with vincristine (VCR: 1.5 mg/square meter (m2) 1x/wk) or with VCR and rubidomycin (25 mg/m2 for 4-6 wk) and prednisone (PR: 40 mg/m2/day po) for remission induction. 6-Mercaptopurine (6-MP: 50 mg/m2), methotrexate (MTX: 20 mg/m2/wk) and cyclophos phamide (CP: 200 mg/m2/wk) were administered for maintenance therapy. Cranial irradiation (2,400 rads) and MTX (12 mg/m2 intrathecally) were administered to prevent CNS involvement. The 54 other patients (Groups B and C) were administered less intensive chemotherapy. Thirty-three patients (Group B) were treated with lower doses of PR and VCR than Group A, and with MTX intrathecally to prevent CNS involvement. MTX and 6-MP were administered for maintenance therapy. Group C (20 patients) were treated with PR and 6-MP or MTX for remission induction and with 6-MP and MTX during remission. The remission rates were 98% in Group A, 88.2% in B and 73.3% in C. The 2-yr survival rates were 37% in Group A, 11.8% in B and 0% in C. The 3-yr survival rates were 24% in Group A and 59% in Group B. The duration of the first remission was 14.9 +-10.09 mo in Group A, 7.4 +-4.75 mo in B and 7.95 +-5.34 in C. The length of the first remission in Group A was 6-

75 mo. Seven patients in Group A were alive for more than 7 yr at the time of reporting, and five of them were no longer treated. The incidence of CNS involvement was 5.5% in Group A. (28 Refs) (In POL)

OTHER SOLID TUMORS OF CHILDHOOD

43. ADVANCED HEPATIC NEOPLASMS IN CHILDREN.

Czerwinski W
Klinika Onkologii Dzieci i Mlodziezy, Instytut Matki i Dziecka, ul. Kasprzaka 17a, 01-211 Warsaw, Poland
Pediatr Pol; 56(8):915-923 1981

Advanced hepatic neoplasms were diagnosed in 17 children (0.25-15 yr old). Hepatoblastoma was diagnosed in nine patients, hepatocellular carcinoma in four and hepatic metastasis of nephroblastoma in four. All 17 patients were subjected to ia 5-fluorouracil (5-FU) treatment. The duration of the treatment was 1 day in 5 patients, 5-34 days in 12. Objective improvement lasting 3 mo to 8 yr was achieved in 12 patients. The other five patients did not respond to the treatment. Rupture of the tumor occurred in four patients, and catheter embolization was performed in two. The tumor reduction achieved by chemotherapy made it possible to perform radical surgery (lobectomy) in two patients (a 3-yr-old girl and an 8-yr-old boy) with hepatoblastoma. These two patients have been alive for 8 and 96 mo, respectively. The findings indicate the great value of ia cytostatic treatment in selected children with malignant hepatic tumors, which can prolong their survival and restore operability in advanced cases. (10 Refs) (In POL)

44. NEOPLASIAS OF THE LIVER IN CHILDREN.

Coronado Perez H, Angulo Hernandez O
Servicio de Patologia, Hospital de Especialidades, Centro Medico La Raza, Mexico D.F., Mexico
Bol Med Hosp Infant Mex; 38(5):723-740 1981

Results were reported of a retrospective study of hepatic tumors in 27 children; 16 of the children had hepatoblastomas (HB: 7 epithelial and 9 mixed), 2 had hepatocellular carcinomas (HC), 4 had mesenchymal hamartomas, 2 had infantile type hemangioendotheliomas (HE), 2 had embryonal rhabdomyosarcomas (RS) of the intrahepatic bile duct, and 1 had a multiple hamartoma of the bile duct. The HB patients (10 male, 6 female; 10 mo to 9 yr old, but 13 greater than 2 yr old) had vague symptoms and increased alkaline phosphatase (AP: 300-1,800 units); only two had jaundice. Virilization was not observed. Ten of the HB were located in the right lobe of the liver (as single masses 6-15 cm in diameter), and 6 were located in both lobes (as multiple nodules in some cases). Only three patients had lobectomies, followed by chemotherapy (CT); times of survival for these patients were 13 mo, 6 yr, and 4 yr. At the time of death, all had pulmonary metastases (ME). Nine patients were administered radiotherapy and CT as palliative measures, and four because of advanced disease, received no therapy; survival times were 1 wk to 6 yr (av, 5 mo). Two patients (7-yr-old boy and 15-yr-old girl) had palpable HC and increased AP (196 and 548 units, respectively); right and left lobectomies were performed. One of these patients was well for 2 yr; the other received 5-fluorouracil and was well for 1 yr. Two girls (2-3 mo old) had laparotomies, which revealed multiple nodules of HE. One died after surgery; the other received prednisone, was asymptomatic for 2 yr, and then was lost. Diagnosis of RS was established at autopsy in two patients (9-yr-old boy and 21-mo-ld girl). (25 Refs) (In SPA)

45. MESENCHYMOMA OF THE LIVER IN CHILDHOOD: FIVE-YEAR SURVIVAL AFTER COMBINED-MODALITY TREATMENT.

Smithson WA, Telander RL, Carney JA
Mayo Clinic, Rochester, MN, 55905
J Pediatr Surg; 17(1):70-72 1982

A 6-yr-old girl underwent resection of an encapsulated, extensively necrotic tumor of the right hepatic lobe. The tumor was identified as a mesenchymoma. Postoperatively, radiotherapy (2,000 rads in 15 fractions over 20 days) and doxorubicin (DXR: 25 mg/square meter [m2]/day x 3 days/mo for 6 mo; total 450 mg/m2) were given. No evidence of cardiotoxicity existed. Second-look laparotomy was performed 2 mo after the end of DXR therapy; no evidence of local recurrence was found. The patient had no evidence of disease or long-term toxicity 5 yr postoperatively. (13 Refs)

46. MALIGNANT CARCINOID TUMORS IN CHILDREN.

Chow CW, Sane S, Campbell PE, Carter RF
Dept. Anatomical Pathology, Royal Children's Hosp., Parkville, Victoria 3052, Australia
Cancer; 49(4):802-811 1982

The clinical, light microscopic, and ultrastructural features of four malignant carcinoid tumors in children, three boys and one girl ages 8-14 years, are described. Extensive metastases to multiple organs were present in three, and in the fourth child there was diffuse local infiltration of the bowel wall, which resembled a lymphoma. The primary tumor arose in the ileum in one child and in the transverse colon in another. In two children, the primary sites could not be determined; one patient is still alive and in the other, permission for autopsy was refused. Electron microscopy showed moderate numbers of neurosecretory granules in some cells in all cases. One patient with extensive metastases showed repeated partial response to radiotherapy and chemotherapy. Eight benign appendiceal carcinoids were seen at the same hospital over the same period, suggesting malignant carcinoids may be more common in children than often assumed. (Author abstract) (20 Refs)

47. NASOPHARYNGEAL CARCINOMA IN AMERICAN CHILDREN: EPSTEIN-BARR VIRUS-SPECIFIC ANTIBODY TITERS AND PROGNOSIS.

Naegele RF, Champion J, Murphy S, Henle G, Henle W
Div. Infectious Diseases, St. Jude Children's Res. Hosp., Memphis, TN
Int J Cancer; 29(2):209-212 1982

Seven American juvenile patients with undifferentiated or nonkeratinizing nasopharyngeal carcinoma (NPC) were examined serially for Epstein-Barr virus (EBV)-specific antibody spectra and titers in sera. At diagnosis, all showed antibody patterns characteristic of NPC: ie, high titers of IgG antibodies to viral capsid antigen (VCA) and to the diffuse (D) component of the early antigen complex. Six patients had IgA antibodies to VCA, and four to the D component. In the patients who responded to therapy with complete and maintained remissions, the IgG antibodies to D and the IgA antibodies to VCA and D decreased to undetectable levels within 12 to 30 mo. By contrast, of the four patients who responded only transiently to therapy, three showed substantial increases and one continuously high titers of IgG anti-D and IgA anti-VCA. The increases in antibody titers preceded clinical recognition of recurrent tumors by 1 to 6 mo. Three of these patients have died and the fourth is alive with disease. These data indicate that American juvenile NPC does not differ from the adult disease

observed anywhere in the world. They reaffirm the potential usefulness of EBV-specific serology in the diagnosis and prognosis of NPC and the monitoring of patients following therapy. (Author abstract) (35 Refs)

OTHER RELATED CLINICAL STUDIES

48. MANDIBULAR AND PARA-MANDIBULAR TUMORS IN CHILDREN: REPORT OF 16 CASES.

Kozlowski K, Masel J, Sprague P, Tamacia L, Kan A, Middleton R
Royal Alexandra Hosp. for Children, Camperdown 2050, N.S.W., Australia

Pediatr Radiol; 11(4):183-192 1981

Sixteen cases of mandibular tumors or paramandibular soft tissue tumors with mandibular involvement are reported. These include such rare mandibular tumors or tumor-like conditions as melanotic progonoma, intraosseous hematoma secondary to von Willebrand's disease, post-irradiation osteosarcoma, monostotic eosinophilic granuloma, aneurysmal bone cyst and osseous hemangiopericytoma. Three cases of cherubism, one of fibrous dysplasia or aggressive fibromatosis and one of central giant cell reparative granuloma are also reported. The soft tissue tumors comprise round cell sarcoma, parotid adenocarcinoma with generalized metastases, embryonal rhabdomyosarcoma, neurofibrosarcoma and congenital cystic hygroma. In all the cases the disease was well advanced when the patient presented for x-ray examination. The specific x-ray diagnosis of mandibular and paramandibular tumors in childhood is more difficult than that of similar tumors in other parts of the body. (Author abstract) (16 Refs)

49. CANCER CHEMOTHERAPY-INDUCED LACTOSE MALABSORPTION IN CHILDREN.

Hyams JS, Batrus CL, Grand RJ, Sallan SE
(c/o Grand), Children's Hosp. Medical Center, 300 Longwood Ave., Boston, MA, 02115

Cancer; 49(4):646-650 1982

To determine whether lactose malabsorption can be induced in children receiving cancer chemotherapy, lactose breath hydrogen tests (LBHT) were performed on 27 patients (ages 2 mo to 16 10/12 yr, mean 4 3/12 yr) with neoplastic disease. Nine patients had an LBHT before their first course of chemotherapy and then 7-26 days afterwards. Eighteen other patients, less than 5 yr old and presumed by virtue of age to be normal lactose absorbers, had an LBHT 7-24 days after their last course of chemotherapy. All nine in the first group had a normal LBHT before chemotherapy, and three had an abnormal LBHT 7-21 days later. Six of eighteen patients in the second group had an abnormal LBHT. Of the nine patients with an abnormal LBHT, six had a history of diarrhea associated with chemotherapy. These findings have important implications for children receiving cancer chemotherapy. High-calorie, milk-containing solutions used in nutritional support may precipitate cramps and diarrhea in some of these patients. A therapeutic trial of a low lactose diet in children in whom diarrhea develops during chemotherapy may be indicated. (Author abstract) (20 Refs)

50. PERSISTENCE OF ANTIBODY AFTER THE ADMINISTRATION OF INFLUENZA VACCINE TO CHILDREN WITH CANCER.

Sumaya CV, Williams TE
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Pediatrics; 69(2):226-229 1982

Children with cancer who received an intramuscular injection of inactivated split or whole bivalent (A/New Jersey/76-A/Victoria/75) influenza virus vaccine during the fall of 1976 were tested up to 18 mo later for the persistence of antibody. Titers of antibody greater than or equal to 10 to influenza A/New Jersey/76 virus were present in the sera of 34 children 2 wk after immunization. The geometric mean titer was 40.0. Eighteen mo later a titer greater than or equal to 10 was present in 13 (38%) ch ildren; the geometric mean titer was 8.5. Of 36 children with a titer of antibody greater than or equal to 10 to A/Victoria/75 virus 2 wk after immunization, 34 still had a detectable titer in the later examination. The geometric mean titer declined from 65.3 to 25.6. Titers of antibody to B/Hong Kong/72 virus (not included in the vaccine) remained relatively stable. In 11 children the usual chemotherapy was discontinued during the study. The shorter persistence of antibody to A/New Jersey/76 virus, in contrast to that of the other two influenza viruses tested, was associated with a lack of prior exposure to the virus and the absence of subsequent natural infection with this virus or an antigenically related subtype. The potential effect of cancer chemotherapy on the persistence of antibody levels is unclear. (Author abstract) (18 Refs)

51. HYPNOSIS AS AN ADJUVANT IN THE TREATMENT OF CHILDHOOD CANCER.

Hartman GA
Div. Hematology/Oncology, Children's Hosp. and Health Center, San Diego, CA

Living with Childhood Cancer. Spinetta JJand Deasy-Spinetta P, ed. St. Louis, The C. V. Mosby Company, 279 pp., 1981.

Perspectives on the relationship between hypnosis and pediatric oncology are presented. The background of hypnosis, some of its clinical indications, and a few of its problems are described. An explanation of the hypnosis process and a brief description of technics and of the flavor of the experience in the San Diego program are reviewed. (27 Refs)

52. REFLECTIONS OF A PEDIATRIC CANCER SPECIALIST.

Koenig HM
Naval Regional Medical Center, Oakland, CA

Living with Childhood Cancer. Spinetta JJand Deasy-Spinetta P, ed. St. Louis, The C. V. Mosby Company, 279 pp., 1981.

A physician describes how caring for children affects him and ways in which he copes with the constant stress of dealing with seriously ill and dying children. Topics are discussed under the following headings: psychological background common to medical professionals, death and the physician, defense mechanisms (initial diagnosis, complex stresses of therapy, death of a patient), and professional burnout and factors related to its prevention (personal attributes, professional environment, life-style characteristics, and a sense of success). (2 Refs)

53. INTERPRETING CLUES TO CHILDHOOD CANCER.

Napolitano LV, D'Angio GJ, Grosfeld JL, Mauer AM, Miller DR, Sinks LF, Peterson RD
No affiliation given
Patient Care; 16(3):19-21,23,24,30,32,35,38,39,42,43,45,46,48-50,55 63 1982

Clues, evaluation, and epidemiology of pediatric cancer are discussed. Of the familial or congenital conditions associated with an increased risk of malignancy, the condition with the highest risk (leukemia in 1%) is Down's syndrome. Pediatric malignancies often mimic other diseases. Cancer is a possible diagnosis in a child with epistaxis, easy bruising, gingival swelling or bleeding, or signs and symptoms of a CNS disorder or an apparent infectious disease. The symptoms of a solid tumor depend on tumor site. Abdominal tumors are often silent until they interfere with normal function. The physician should carefully question the parent who brings the child in. Even if clinical examination is negative, the parent knows the child better than the physician and is more alert to subtle signs of illness. Children with aniridia should be examined for possible Wilms' tumor every 3-6 mo during the first 2-3 yr of life. However, repeated hematologic examinations are not indicated for children at high risk of leukemia, because the differential WBC may be entirely normal in a child who only 2 mo later has obvious leukemia. Needle biopsy is usually contraindicated for abdominal or thoracic masses. Lymphadenopathy in children is more likely to be caused by an infectious disease than by a malignancy. If the enlarged nodes are hard, do not regress in response to a course of antibiotics, and (sometimes) increase in size over a 2-mo period, the possibility of Hodgkin's disease or non-Hodgkin's lymphoma should be considered and a lymph node biopsy performed. The biopsy specimen should be prepared for all basic studies (electron microscopy, histochemical analysis, fresh tissue analysis, cell surface markers, a touch prep slide). A step-by-step approach to diagnosis of the 11 most common pediatric malignancies is presented. (3 Refs)

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AUTHOR INDEX WITH CITATION NUMBERS

Amborska H. 29
Andrieu JM. 27
Angulo Hernande. 44
Armengol V. 17
Baldeyrou P. 13
Barrett A. 28
Batrus CL. 49
Bezea RS. 4
Bernard J. 27
Bianchi A. 11
Bloom HJ. 28
Boguslawska-Jaw. 34
Boiron M. 27
Bonamico M. 8
Borkowski W. 38
Borysewicz G. 10
Bozek J. 10
Braz A. 3
Bunjevacki G. 12
Campbell PE. 46
Carney JA. 45
Carter RF. 46
Caruselli G. 15
Ceccamea A. 8
Cesarz-Kruz E. 31
Champion J. 47
Charney EB. 18
Chiofalo N. 17
Chmielewska D. 36
Chow CW. 46
Ciepielewska D. 37
Coronado Perez. 44
Cramer P. 27
Cyklis R. 29
Czerchawski L. 34
Czerwinski W. 43
D'Angio GJ. 53
Damgaard-Peders. 6
De Camargo B. 11
Depowska T. 38
Derulska D. 42
Djordjevic M. 12
Duczmal B. 41
Dupont J. 23
Duros H. 10
Edwards MS. 14
Eklof O. 6
Enomoto T. 19
Epstein F. 15
Eustaquio MS. 30
Fasano JC. 3
Fisman N. 23
Franiczek W. 39
Fuentes A. 17
Galatius-Jensen. 6
Garay G. 23
Gelbard AS. 4
Giannotti Anton. 11
Giannotti O. 11
Goldman A. 28
Goldman AI. 20
Graham-Pole J. 28
Grand RJ. 49
Grosfeld JL. 53
Gulmini LC. 3
Gutkowska J. 36
Hamoudi AB. 24
Hartman GA. 51
Hasegawa K. 22
Henle G. 47
Henle W. 47
Hida K. 22
Honig PJ. 18
Hyams JS. 49
Ide F. 33
Jackson CW. 21
Jedrzejewska A. 7
Kaczmarek M. 35
Kaczor Z. 38
Kan A. 48
Kano Y. 22
Kansy J. 42
Kasahara T. 22
Kersey JH. 20
Kim TH. 20
Kobuszewska-Far. 7
Koenig HM. 52
Kolanowska H. 38
Kotschy M. 34
Kozlowski K. 48
Krivit W. 20
Kryst-Widzgowsk. 16
Kubiczek K. 29
Kunicka A. 10
Kusama K. 33
Laughlin JS. 4
Lawson DN. 28
Lemoine G. 13
Levin VA. 14
Lukas A. 31
Lukas W. 31
Luongo A. 15
Madsen J. 17
Maekawa K. 19
Magrath I. 32
Maki Y. 19
Makowska K. 42
Malbrel C. 1
Malpas JS. 28
Maluf PT. 30
Mancer K. 24
Maruyama H. 19
Masel J. 48
Matsumoto H. 2
Matysiak M. 36
Mauer AM. 53
McElwain TJ. 28
McGlave PB. 20
Mello de Andrea. 11
Michalewska D. 41
Middleton R. 48
Mihara S. 2
Miller DR. 53
Montupet P. 13
Murphy S. 21
Murphy S. 47
Naegele RF. 47
Napoleoni M. 8
Napolitano LV. 53
Nesbit ME. 20
Newecka-Samol T. 25
Newecka-Samol T. 37
Newton WA. 24
Nose T. 19
Nowakowska K. 10
Ochocka M. 25
Ochocka M. 37
Odone V. 30
Okamura J. 22
Okuyama MH. 3
Olivares O. 17
Ota M. 2
Papo I. 15
Pavlovsky S. 23
Penn GM. 24
Perek D. 10
Peterson RD. 53
Pinus J. 3
Pizza M. 11
Price R. 21
Pritchard J. 28
Prokopczyk J. 9
Pui CH. 21
Radwanska U. 41
Ramirez C. 11
Ramot B. 32
Ramsay NK. 20
Raus Z. 34
Reiman RE. 4
Robison LL. 20
Rokicka-Milewsk. 42
Rosen G. 4
Sabino MA. 30
Sagel SS. 5
Sakamoto S. 22
Sallan SE. 49
Sandland R. 28
Sane S. 46
Sanna MC. 30
Sano R. 33
Sasaki H. 22
Scaglione C. 23
Scarborough V. 21
Schaison G. 27
Schiller PG. 30
Schweisguth O. 13
Seager ML. 14
Shimura H. 33
Sidor K. 40
Siegel MJ. 5
Sinks LF. 53
Siwinska-Golebi. 10
Skrobowska-Wozn. 42
Smithson WA. 45
Smogorzewska E. 10
Sonta-Jakimczyk. 31
Sonta-Jakimczyk. 39
Sprague P. 48

Sroczynska M. 31
Sroczynska M. 39
Stojicic G. 12
Sumaya CV. 50
Szymanska-Krupa 39
Takaku F. 22
Talmud M. 1
Tamaela L. 48
Telander RL. 45
Tokunaga F. 2
Traczewska M. 40
Traczynska H. 16
Tsukada T. 22
Umemura S. 33
Vidal P. 17
Wachowiak J. 26
Wankowicz B. 9
Wenzel E. 9
Wiliams DL. 21
Williams TE. 50
Wlodek B. 29
Wlson CB. 14
Wojcik Z. 39
Woods WG. 20
Yamashita S. 2
Yano H. 2

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-2
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 3-6
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 7-8
- NEUROBLASTOMAS AND CNS TUMORS..... 9-19
- LYMPHOMAS AND LEUKEMIAS..... 20-37
- OTHER SOLID TUMORS OF CHILDHOOD..... 38-39
- OTHER RELATED CLINICAL STUDIES..... 40-52
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 53-55

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. SOFT TISSUE SARCOMAS IN CHILDHOOD.

Hays DM
Dept. Surgery, USC Sch. Medicine, Children's Hosp. Los Angeles, Los Angeles, CA, 90033
Front Radiat Ther Oncol; 16:114-121 1982

Chemotherapy (eg, vincristine, actinomycin D, and cyclophosphamide, VAC; with or without adriamycin), conservative surgery, and postoperative radiotherapy (RT) are indicated for children with rhabdomyosarcomas. Initial good results may

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occur in about 70%. Recurrences may be controllable by exenteration. Pelvic rhabdomyosarcomas respond best to chemotherapy. An alveolar histologic type is an unfavorable sign, regardless of tumor site; these tumors tend to recur distantly rather than locally. Conservative surgery is indicated for the treatment of fibrosarcomas in children less than 10 yr old. Even fibrosarcomas of anaplastic or 'invasive' histology seldom recur in this age group. Limb-saving surgery can be considered for adolescents (greater than 15 yr old), provided that skeletal growth is nearly complete. Synovial sarcomas are more likely to recur and disseminate than fibrosarcomas. Amputation may be preferable to limited resection and high-dose RT, especially if the tumor is near an osseous growth center. Small cell soft tissue sarcomas are seldom controlled by radical surgery. These patients may respond to the same chemotherapy (eg, VAC) as children with rhabdomyosarcomas. Chemotherapy followed by tumor resection is recommended for the treatment of hemangiosarcomas in children. Conservative resection is recommended for the treatment of benign neurofibromas in children. Malignant transformation of these tumors is uncommon in childhood (less than 10%). Malignant neurofibrosarcomas may be controllable by aggressive multimodality treatment, beginning with radical surgery. (12 Refs)

2. DENTAL PROBLEMS IN PEDIATRIC PATIENTS WITH HEAD AND NECK TUMORS UNDERGOING MULTIPLE MODALITY THERAPY.

Hazra TA, Shipman B
Div. Radiation Therapy and Oncology, Medical Coll. Virginia, Box 533, Richmond, VA, 23298
Med Pediatr Oncol; 10(1):91-95 1982

Cases of two boys (2 and 7 yr old) with facial embryonal rhabdomyosarcomas are presented in order to illustrate the importance of dental care in such patients undergoing multimodality therapy. The patients received radiation therapy (6,000 rad in 30 or 33 fractions); the first child also received chemotherapy. Six mo later, the first child presented with rampant caries necessitating placement of 18 stainless steel crowns and two extractions. Mandibular growth was retarded. Dental management of such patients should start prior to radiation therapy and continue through and after treatment. (5 Refs)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

3. MANAGEMENT OF CHILDREN WITH WILMS' TUMOR: DEFINING THE RISK-BENEFIT RATIO.

D'Angio G, Evans A, Breslow N, Baum E, Beckwith JB, DeLorimier A, Fernbach D, Hrabovsky E, Jones B, Kelalis P, Othersen HB, Tefft M, Thomas P
Children's Cancer Res. Center, Children's Hosp. Philadelphia, Philadelphia, PA, 19104
Front Radiat Ther Oncol; 16:30-39 1982

In children with Wilms' tumor, the most important features influencing the relapse-free survival rate are tumor histology and lymph node metastases. The unfavorable histologic features (UF) include focal or diffuse anaplasia and sarcomatous characteristics of a 'rhabdoid' or 'clear cell' type. In an ongoing clinical trial, all patients with UF tumors and patients with Stage IV tumors of favorable histologic type (FH) are treated postoperatively with radiotherapy (RT: age-adjusted doses to the tumor site and other involved areas) and 15-mo courses of actinomycin D (A-D), vincristine (VCR), and adriamycin (ADR), with or without cyclophosphamide. All patients with tumors of FH type are treated postoperatively with A-D and VCR. The preliminary results suggest that Stage I patients may not require RT, and that chemotherapy for 6 mo may be as effective as chemotherapy for 15 mo. In patients with Stage II-IV disease of FH type, the addition of ADR to the A-D/VCR combination (15-mo courses) after surgery and postoperative RT seems to be more effective than A-D/VCR or either A-D or VCR alone. Children with aniridia, hemihypertrophy, Beckwith-Wiedemann syndrome, or nephroblastomatosis are at high risk of developing Wilms' tumor. Methods for following up patients showing these stigmata are being developed. (17 Refs)

4. WILMS' TUMOR. OUR EXPERIENCE DURING TEN YEARS OF CLINICAL PRACTICE.

Hajek J, Vrubel F
Clinque Urologique, UJEP, Pekarska 53, 656 91 Brno, Czechoslovakia
Acta Urol Belg; 50(1):26-32 1982

Wilms' tumors (WT), accounting for 20% of childhood tumors, are reviewed. Theories regarding the embryonic development of WT are presented. WT are observed in fetuses and in newborns; 75% of WT are discovered in children less than 5 yr, with approx. 60% appearing before age 3 yr. WT are equally distributed among males and females. WT may occur in the right or left kidney. In 10% of cases bilateral WT are observed. The anatomy, pathology and histology of WT are described. WT are characterized by a palpable tumor; less common symptoms include pain in the kidney region, hematuria, and hypertension. Diagnostic technics for WT include palpation, radiography, ultrasonography, angiography, and cavography. Treatment of WT includes preoperative radiation, abdominal nephrectomy, intermittent and longterm chemotherapy, and postoperative radiotherapy. The prognosis for patients with WT is discussed. (23 Refs) (In FRE)

5. RESULTS OF NEPHROBLASTOMA TREATMENT AT THE HOSPITAL OF PEDIATRIC SURGERY IN BRATISLAVA (1970-1978).

Horniakova M, Payer J, Boljesik M, Vrsansky P
Klinika pediatrickej chirurgie, Lekarska fakulta Univerzity Komenskeho, Limbova 5, 809 46 Bratislava, Czechoslovakia
Bratisl Lek Listy; 76(5):585-591 1981

The treatment of 50 children (29 boys and 21 girls) with nephroblastoma is reported. All patients were in the age bracket 0-6 yr. The right kidney was affected in 22 patients, the left kidney in 27, and both in 1. The treatment consisted of surgery, radiotherapy (total dose 2,500-3,500 rads fractionated at 150 rads) and chemotherapy with the combination of actinomycin D and vincristine in 2-4 cycles, depending on the stage of the disease. Stage I was diagnosed in 5 patients, II in 15, III in 24, IV and 5 and V in 1. The median survival time was 4.39 yr, the av survival time 4.55 yr, and the range of survival was 2-10 yr. Four out of five patients in Stage I, 12/15 in Stage II, 15/24 in III, 0/5 in IV and 0/1 in V were alive at the time of reporting. The importance of early surgical diagnosis and of centralized treatment in specialized units with adequate experience is emphasized. (12 Refs) (In SLO)

6. BILATERAL JUVENILE GRANULOSA CELL TUMORS IN A 4-MONTH-OLD DYSMORPHIC INFANT: A CLINICAL, HISTOLOGIC, AND ULTRASTRUCTURAL STUDY.

Pysher TJ, Hitch DC, Krous HF
Dept. Pathology, Oklahoma Children's Memorial Hosp., P.O. Box 26307, Oklahoma City, OK, 73126
Am J Surg Pathol; 5(8):789-794 1981

A 4-mo-old girl with multiple congenital malformations presented with an abdominal mass. No history of prenatal drug or hormone exposure or abnormal postnatal endocrine activity existed. Serum alpha-fetoprotein (AFP) levels were mildly elevated (41.2 mg/ml). Sonography disclosed bilateral cystic ovarian masses and no signs of metastases. The ovarian masses were excised completely and identified as granulosa cell tumors. The patient had no evidence of disease and normal serum AFP level 16 mo postoperatively. Two other cases of bilateral juvenile granulosa cell tumors (both in young infants) have been reported. (21 Refs)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

7. MALIGNANT BONE TUMORS IN CHILDREN: A DECADE OF PROGRESS.

Jaffe N
Dept. Pediatrics, M. D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
Front Radiat Ther Oncol; 16:105-113 1982

The diagnosis and treatment of malignant bone tumors in children has improved greatly in the past 10 yr. With the use of combination chemotherapy and newer diagnostic and surgical techniques, the actuarial disease-free (NED) survival rate at 3-5 yr in osteosarcoma patients is now 50-80% (vs 20% in historical controls). Megavoltage radiotherapy (RT) and combination chemotherapy using agents with different mechanisms of action and minimal overlapping toxicity can provide local control and good functional results in greater than 80% of Ewing's sarcoma patients, with an actuarial NED survival rate at 3-5 yr of 55-75% (vs 8-24% in historical controls). These improved results are applicable only to patients with localized Ewing's sarcomas. Non-Hodgkin's lymphomas (NHL) seldom involve bone in children; their behavior resembles NHL of other sites. RT to the primary tumor and antileukemic combination chemotherapy may be curative in greater than 80% of patients with localized NHL of bone, but these patients are at risk of leukemic transformation. The 5-yr survival rate is 35-50%. The standard treatment for eosinophilic granuloma of bone is excisional surgery or local RT. If this treatment might damage an adjacent epiphyseal plate, local inj ection of methylprednisolone may be an effective alternative therapy. Attempts to enhance host immunologic reactions to bone tumors (eg, osteosarcoma) have not proven clearly superior to conventional treatments. The continuing controversy over the validity of historical control data has led to studies demonstrating the importance of age, sex, primary tumor site, histologic grade, and tumor type as significant prognostic factors. (46 Refs)

8. METHOD OF RADIOTHERAPY OF EWING'S SARCOMA OF LONG TUBULAR BONES IN CHILDREN.

Timukhina VN, Goldobenko GV, Bizer VA
Res. Inst. Medical radiology, Obninsk, USSR
Med Radiol (Mosk); 27(2):21-23 1982

The results of radiotherapy of 78 children (3-16 yr old) with Ewing's sarcoma of the long tubular bones are reported. Radiotherapy was given in combination with sarcolysin, cyclophosphamide, or vincristine. The patients received irradiations from two or three fields (single dose 200-500 rads, total dose 5,500-6,000 rads). Radiation injuries (erythema and epidermitis) were more frequent in the patients who received uneven irradiations. All patients who received simultaneous irradiations from three fields were free of radiation injuries or recurrences. (5 Refs) (In RUS)

NEUROBLASTOMAS AND CNS TUMORS

9. IMAGE ANALYSIS OF NEUROBLASTOMAS: DISCRIMINATION OF PROGNOSTIC PATTERNS.

Moragas A, Toran N
Dept. Pathology, Ciudad Sanitaria de la Seguridad and Autonomous Medical Sch., Valle de Hebron, Barcelona 35, Spain
Diagn Histopathol; 5(1):53-57 1982

Size distribution and textural characteristics of intercellular stroma and nuclei in histologic sections from 52 cases of neuroblastoma in children were analyzed by means of the opening-closing techniques of mathematical morphology. Sequential image transformation was implemented using a television texture analyzer with a TASIC computer program and 10 preset opening and closing transformations. The curve of the closing function relates to the distribution and peculiarities of the interconnected net that corresponds to intercellular stroma after selection of the cells by means of gray-level thresholding. All children whose tissue had specific area values on closing of 0.77 or greater died (28), except for one with cervical neuroblastoma in clinical Stage I. Opening functions correspond morphologically to the size distribution and characteristics of the nuclear set; opening functions overlapped greatly and were not informative. Application of mathematical morphology permits an objective classification of cases according to degree of differentiation, which leads to a set of curves that can be used as a prognostic index in individual cases. Prognosis is directly proportional to the spatial size distribution of the intercellular stroma and degree of fibril formation. For patients who survived, the degree of maturation correlated with patient age at which the diagnosis of tumor was established. (15 Refs)

10. HIGH-DOSE MELPHALAN WITH AUTOLOGOUS MARROW FOR TREATMENT OF ADVANCED NEUROBLASTOMA.

Pritchard J, McElwain TJ, Graham-Pole J
Dept. Pediatric Hematology/Oncology, Rainbow Babies and Children's Hosp., Case Western Reserve Univ., Cleveland, OH, 44106
Br J Cancer; 45(1):86-94 1982

A group of 12 children with advanced neuroblastoma (7 Stage IV and 5 Stage III), selected by their initial response to chemotherapy with pulsed cyclophosphamide/vincristine/Adriamycin (CVA), were given consolidation therapy with high-dose melphalan (140 mg/m(2)) and then surgical removal of residual disease. Twenty-two high-dose melphalan proce-

dures were combined with autologous marrow grafting to offset myelotoxicity and were well tolerated. In each of two additional children, procedures carried out without marrow autografting led to serious marrow and mucosal toxicity. There were no treatment-related deaths. In 7/11 patients with evaluable computerized tomographic (CT) scans there was a decrease in maximum diameter of the primary tumur after melphalan. Complete response was achieved in six patients, of whom three are well and have no evidence of disease at 35, 33 and 18 months from completion of all treatment; however, although survival (median 23 months) of all 12 autografted patients is longer than that of 28 comparable children treated between 1970-77 with conventional chemotherapy (median 14 months) the difference is not statistically significant. High-dose melphalan is a safe and tolerable treatment in children when combined with autologous marrow grafting, but further study is required to determine whether the procedure can improve prognosis for patients with advanced neuroblastoma. (Author abstract) (24 Refs)

11. PRIMARY CEREBRAL NEUROBLASTOMA: CASE REPORT.

Otsuki T, Takahashi S, Sonobe M, Kubota Y, Shibazaki S
Div. Neurosurgery, Mito Natl. Hosp., Mito, Japan
No Shinkei Geka; 9(13):1535-1540 1981

Primary cerebral neuroblastoma is rare. The case reported here was a 2-yr-old girl who was comatose on admission to the Mito National Hospital. She had experienced headache and vomiting during the last 2 mo. Neurological examination showed bilateral papilledema, left oculomotor palsy and bilateral Babinski's sign. A-P view of the left carotid angiogram showed square shift of the anterior cerebral artery to the right, and the lateral view showed upward and anterior displacement of the middle cerebral artery. CT revealed large mass lesion in the left parieto-temporal lobe, which was slightly enhanced on the contrast study. Subtotal removal of the tumor was performed on the day of admission. On the 15th postoperative day, she was started on radiation therapy to the brain and received 1,900 rads. Vincristine and ACNU (1-(4-amino-2-methyl-5-pyrimidinyl) methyl-3-(2-chloroethyl)-3 nitrosourea) were administered with radiation therapy. She improved progressively 5 wk after the operation and CT demonstrated marked shrinkage of the tumor. However, signs of increased intracranial pressure reappeared and she died 6 mo after the operation. Autopsy showed well defined soft and grayish white tumor in the occipito-temporal lobe, which extended to the left thalamus and basal ganglia. No other tumor was present extracranially. Microscopic examination demonstrated Homer-Wright rosette and zonal filament. Pathological diagnosis was neuroblastoma. (Author abstract) (25 Refs) (In JPN)

12. HIGH RESOLUTION COMPUTERIZED TOMOGRAPHY WITH CORONAL AND SAGITTAL RECONSTRUCTION IN THE DIAGNOSIS OF BRAIN TUMORS IN CHILDREN.

Snead OC, Acker JD, Morawetz RW, Benton JW
Dept. Pediatrics, Radiology, and Neurosurgery, Univ. Alabama Sch. Medicine, Birmingham, AL
Childs Brain; 9(1):1-9 1982

Experience with four cases of intracranial tumors in children (2 male, 2 female; 15 mo-11 yr old) that originally went undetected or were incompletely characterized by conventional computerized tomography (CT) scanning is described. The use of a high resolution CT scanner (GE CT/T8800) with a maximal dose (4 ml/kg) of 300 mgI/ml intravenous contrast agent helped in appropriate diagnosis or clarification of the pathologic process. True spatial orientation was determined with complete reconstructed sagittal and coronal views. In patients with no radiologic evidence of intracranial neoplasm by conventional scanning but with continued clinical manifestations, or in those whose lesions have been incompletely characterized by conventional CT, high resolution scanning with bolus high dose contrast (continuous infusion) and three-dimensional reconstruction may be useful prior to cerebral angiography. Three-dimensional reconstruction is not necessary or advisable for every posterior fossa tumor, but it may be helpful for accurate localization of intracranial masses and for demonstration of the extent of lesions, spatial orientation, and distortion of vascular structures, with a very brief scan time. (16 Refs)

13. DIAGNOSTIC POSSIBILITIES OF GAMMAGRAPHY OF THE BRAIN IN CHILDHOOD.

Bukovy G, Bucek M, Cternik K, Dluholucky S
Oddelenie nuklearnej mediciny, Krajsky ustav narodneho zdravia, Tulska 51, 974 00 Banska Bystrica, Czechoslovakia
Cesk Pediatr; 37(1):13-15 1982

Three hundred and sixty-eight children of all age groups were subjected to cerebral gammagraphy. Brain tumor was suspected in 131 patients and ultimately confirmed in 28. The gammagraphic findings were positive in 24 patients and negative in 103. The diagnostic reliability was relatively high especially in the diagnosis of supratentorial tumors. (7 Refs) (In SLO)

14. INTRACTABLE HICCUPS AS PRESENTING SYMPTOM OF BRAINSTEM TUMOR IN CHILDREN.

Fischer AQ, McLean WT
Dept. Neurology, Univ. Nebraska Medical Center, 42nd and Dewey Ave., Omaha, NE, 68105
Childs Brain; 9(1):60-63 1982

An 8-yr-old boy who presented originally with intractable hiccups accompanied by an episode of pneumonia had repeated respiratory problems and recurrent episodes of hiccups over the next few mo. After several mo a change in voice and fasciculations of the tongue were observed; reexamination showed elevated protein in cerebrospinal fluid and a pneumoencephalogram demonstrated a mass projecting into the inferior portion of the floor of the left ventricle. The mass arose from a swollen medulla oblongata. The slowly growing low-grade glioma in the medulla had evidently irritated the centrally mediated pathway for hiccups. (6 Refs)

15. SERUM SOMATOMEDIN ACTIVITY IN CHILDREN AFTER SURGERY FOR CRANIOPHARYNGIOMA.

Martinez MJ, Chaussain JL, Schimpff RM, Donnadieu M, Roger M, Job JC
(c/o Chaussain) Laboratoire de Recherches sur la croissance, INSERM U 188, Hopital Saint-Vincent-de-Paul, 74, avenue Denfert-Rochereau, 75014 Paris, France
Arch Fr Pediatr; 38(Supplement1):881-886 1981

Somatomedin (ST) activity and blood hormone levels were studied in 22 children (10 males, 12 females; 5-15 yr old) who had undergone surgery for craniopharyngiomas. The patients exhibited varying rates of growth. Serum growth hormone levels were consistently less than 1 nanog/ml. The correlation between serum ST activity and the speed of growth showed a highly significant correlation. No correlation was observed between serum ST activity and other clinical parameters: percentage of excess wt and recent variations in wt. No correla-

tion was found between ST activity and blood concentrations of insulin and prolactin. A negative correlation between ST activity and plasma cortisol levels was observed when only patients not receiving hydrocortisone therapy were considered; among these patients, a negative correlation was also found in comparing serum cortisol and growth rate. When the total group of patients was considered no such negative correlations were noted. Patients receiving thyroid hormones showed a positive correlation between ST activity serum concentrations of triiodothyronine and thyroxine. Triiodothyronine levels were positively correlated with the rate of growth. The results indicated that in children operated on for craniopharyngioma, growth is related to a generation of ST independent of growth hormone secretion and is closely controlled by endogenous secretions of cortisol and thyroid hormones. (15 Refs) (In FRE)

16. ASSESSMENT OF THE LONG-TERM EFFECTS OF PRIMARY RADIATION THERAPY FOR BRAIN TUMORS IN CHILDREN.

Danoff BF, Cowchock S, Marquette C, Mulgrew L, Kramer S
Dept. Radiation Therapy and Nuclear Medicine, Hosp. Univ. Pennsylvania, Philadelphia, PA, 19104
Cancer; 49(8):1580-1586 1982

One-hundred-twelve children with primary brain tumors received definitive radiotherapy between the yr 1958-1979. Sixty-nine patients were alive at intervals of 1-21 yr. Thirty-eight patients underwent neurologic and endocrine evaluation, psychologic and intelligence testing, and assessment for second malignancy post-treatment. A second intracranial malignancy developed in one child, for an incidence of 1.6%. Performance status was good to excellent in 89% of the patients studied. Seventeen percent of the group were mentally retarded. Behavioral disorders were identified in 39% of the patients, 59% of the mothers, and 43% of the fathers. Of the 23 patients with nonparasellar tumors, 6 were found to have growth hormone deficiency, including 2 patients with panhypopituitarism. Disability was related to age under 3 yr at the time of treatment and tumor extension to the hypothalamus. (Author abstract) (33 Refs)

17. BRAIN TUMORS IN CHILDREN. THERAPY SELECTION AND LONG-TERM RESULTS.

Takaku A, Endo S, Oka N
Dept. Neurosurgery, Toyama Medical and Pharmaceutical Univ., Japan
No Shinkei Geka; 9(13):1453-1468 1981

Degrees of difficulty in performing various types of brain tumor surgery were studied in relation to surgical death rates. Medulloblastomas are among the most malignant of childhood brain tumors and are especially difficult to treat surgically if the tumor infiltrates to the floor of the fourth ventricle. Surgical deaths from complete resection of medulloblastomas are not less than 10%. Ependymomas also are difficult to treat surgically, and surgical death rates for these tumors do not differ appreciably from those for medulloblastomas. However, prognosis depends upon whether the ependymoma is infratentorial or supratentorial or is benign or malignant. Infratentorial ependymomas have a poor prognosis, and malignant ependymomas have a poorer prognosis than medulloblastomas. Patients with cerebellar astrocytomas have a high recurrence rate if they survive 10 yr postoperatively; surgery, radiotherapy, or chemotherapy may be required again. Cerebral hemisphere gliomas have relatively few surgical problems, but their recurrence is not favorable. Radiotherapy is recommended for brain stem gliomas that are definitively diagnosed with computed tomography. Surgical indications for craniopharyngioma, pineal region tumor, and optic glioma also were discussed. (130 Refs) (In JPN)

18. BRAIN GLIOMAS IN CHILDREN: TREATMENT POLICY AND PROGNOSIS.

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Front Radiat Ther Oncol; 16:90-104 1982

Radiotherapy (RT) was given to 461 children with brain tumors; 378 had gliomas. The survival rates were 48% at 5 yr, 41% at 10 yr, and 38% at both 15 and 20 yr. The survival rates depended on the age at treatment (52% at 10-20 yr for 129 patients treated when 10-15 yr old; 27% at 15-20 yr for 60 patients treated when less than 3 yr old), tumor site (19% at 5 and 10 yr for brain stem gliomas; 71% at 5 yr and 58% at 10 yr for gliomas of the third ventricle or hypothalamus), and tumor histology. The 5-yr survival rate was 32% in 88 patients with medulloblastomas treated by surgery and cerebrospinal axis RT. In 37 other patients who also received vincristine (VCR) and lomustine (CCNU), the 5-yr survival rate was 71%. In 47 patients with ependymomas, the survival rates with RT alone were 53% at 5 yr, 37% at 10 yr, and 32% at 20 yr. When VCR and CCNU were added, the 5-yr survival rate was 69% (vs 44% in historical controls), but this improvement was not maintained beyond 6-7 yr. Misonidazole was added during megavoltage RT (5,000 rads) for brain stem tumors in an unspecified number of patients; the results were not evaluable at the time of report. Follow-up studies on 47 patients who had received RT 4-18 yr previously showed that 68% were of av or high intelligence and 20% had received some higher education. These studies showed the need for continuing educational and psychosocial support for children receiving RT for brain tumors. If a child is successfully treated and returns to an active life, plans for his future may be curtailed if his family and teachers expect him to die soon. For some children, long-term survival brings its own problems, which need to be dealt with so that therapeutic triumph is not overshadowed by tragedy at home and failure at school. (33 Refs)

19. RETINOBLASTOMA: CLINICAL AND HISTOPATHOLOGIC FEATURES.

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Hum Pathol; 13(2):133-147 1982

Retinoblastoma, the ocular tumor of childhood, is unusual in its genetic implications, the frequency of occurrence of second primary tumors, the association of a 13q14 chromosome deletion, and the high incidence of spontaneous regression. This article reviews the clinical and histopathologic features of the disease and briefly summarizes histopathologic findings regarding cell death and tumor necrosis in retinoblastoma. (Author abstract) (163 Refs)

LYMPHOMAS AND LEUKEMIAS

20. NON-T, NON-B LYMPHOMAS ARE RARE IN CHILDHOOD AND ASSOCIATED WITH CUTANEOUS TUMOR.

Bernard A, Merphy SB, Melvin S, Bowman WP, Caillaud J, Lemerle J, Boumsell L
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Blood; 59(3):549-554 1982

Tumor cells from a total of 116 children with non-Hodgkin's lymphoma were studied for their pattern of reactivity with a battery of cell markers, including their capacity for spontane ous formation of sheep erythrocyte rosettes (E-rosettes), demonstration of surface immunoglobulins (SIg), and positivity with antisera against T-cell antigens, the common acute-lymphoblastic-leukemia-associated antigen (cALLa), and Ia-like antigens. Fifty-eight children (50%) had T-cell lymphomas, including all those with mediastinal tumors. Fifty children (43%) had B-cell lymphomas, including 44 of the 45 with abdominal primaries. Eight children (7%) non-T, non-B tumors, four of whom presented at a young age with cutaneous lymphoblastic tumors. These results demonstrate that the great majority of children with NHL, not leukemic at diagnosis, have tumors clearly committed to either T- or B-cell differentiation pathways and only rarely exhibit the common ALL phenotype (cALLa+, Ia+, E-, T-, SIg-), contrasting with the distribution of childhood lymphoblastic leukemias. The unusual association of these non-T, non-B cases with skin involvement has not previously been reported, raising speculation regarding patterns of lymphocyte traffic and origins of childhood lymphomas and leukemias. (Author abstract) (32 Refs)

21. PAEDIATRIC NON-HODGKIN'S LYMPHOMAS: THE CHILDREN'S CANCER STUDY GROUP EXPERIENCE. AN INTERIM REPORT.

Jenkin RD, Anderson JR, Chilcote RR, Coccia P, Exelby P, Kersey J, Kushner J, Meadows A, Siegel S, Wilson J, Leiken S, Hammond D
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Front Radiat Ther Oncol; 16:134-140 1982

Children in the nonleukemic stages of non-Hodgkin's lymphomas (NHL) were given combination chemotherapy for 18 mo, standardized radiotherapy (max, 3,000 rads for local vol, 2,000 rads whole-abdomen), and intrathecal (ith) methotrexate (MTX: days 5, 31, and 34 of induction, then every 28 days). Some patients were randomized to the LSA2-L2 regimen of induction (37-day course) with cyclophosphamide (CP), vincristine (VCR), MTX (iv and ith), prednisone (PRN), and daunomycin (DNM); consolidation (about 7 wk) with cytosine arabinoside (ara-C), 6-thioguanine (TG), L-asparaginase, MTX (ith), and carmustine (BCNU); and maintenance (every 28 days) with cycles of TG-CP, hydroxyurea-DNM, MTX (po)-BCNU, ara-C-VCR, and ith MTX. The other patients were given the COMP regimen (27-day induction, maintenance every 28 days) of CP, VCR, MTX (ith and iv), and PRN. In the total group (374 patients), the 3-yr survival rate was 66% and the relapse-free survival (RFS) rate was 61%. In 118 patients with localized NHL, the 3-yr RFS rates were comparable with LSA2-L2 (81%) and COMP (85%). In 256 patients with nonlocalized NHL, the outcome depended on tumor histology. The 3-yr RFS rate in lymphoblastic NHL was 73% with LSA2-L2 and 31% with COMP. The 2-yr RFS rate in non-lymphoblastic NHL was higher with COMP than with LSA2-L2 in diffuse histiocytic NHL (69% vs 26%), Burk itt-type diffuse undifferentiated NHL (64% vs 20%), and pleomorphic diffuse undifferentiated NHL (59% vs 29%). In the total group, about 5% died of toxicity during remission and 7% developed isolated first CNS relapses. Most relapses developed within 2 yr. The optimal treatment of childhood NHL is not yet clear, but these results showed that histology-specific chemotherapy can be curative in about 70% of children with nonlocalized NHL. (8 Refs)

22. IMMUNOLOGIC EVALUATION OF LONG-TERM EFFECTS OF CHILDHOOD ALL CHEMOTHERAPY: ANALYSIS OF IN VITRO NK- AND K-CELL ACTIVITIES OF PERIPHERAL BLOOD LYMPHOCYTES.

McGeorge MB, Russell EC, Mohanakumar T
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Am J Hematol; 12(1):19-27 1982

Twenty-five children with acute lymphoblastic leukemia (ALL) were tested for natural killer (NK) and K-cell activity in vitro using the nonsensitized myeloid/erythroid cell line K562 and the K562 sensitized with rabbit antithymocyte globulin, respectively. The patients consisted of two groups: (1) 13 patients in continuous first remission undergoing maintenance chemotherapy and (2) 12 patients in remission for at least 5 yr in whom chemotherapy had been discontinued at least 6 mo before this study. The first group consistently demonstrated a marked depression in their NK activity and antibody-dependent cell-mediated cytotoxicity (K-cell activity), as compared with normal controls. In contrast, normal levels of cytotoxicity were found in the second group of patients off of all chemotherapy. One patient studied while on chemotherapy and on two occasions following discontinuation of maintenance medications demonstrated that while NK and K-cell activity was depressed during therapy, normal activity returned within days when immunosuppressive therapy was stopped. Thus, present modes of chemotherapy clearly had a profound effect on the in vitro NK and K-cell activity; however, no long-term effect on these functions was noted in our studies. (Author abstract) (22 Refs)

23. GLUCOCORTICOID RECEPTORS IN LEUKEMIC CELLS OF CHILDREN WITH ACUTE LEUKEMIA.

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Dept. Pediatrics, Mie Univ. Sch. Medicine, Tsu, Japan
Mie Med J; 31(1):109-125 1981

Levels of glucocorticoid receptors (GCR) in leukemic cells in children with acute leukemia were measured. Blood samples were obtained from 80 patients (41 males and 39 females, 2 mo-22 yr old). Cases included 65 of acute lymphoblastic leukemia (ALL) and 15 of acute myeloblastic leukemia (AML). Binding of [3H]dexamethasone (DMS) was measured with whole cells and with cytosol fractions. Nuclear binding accounted for 60%, cytosol binding for 40%, of total binding. Nuclear binding was proportional to cytosol binding and did not become saturated at DMS levels sufficient to saturate cytosol binding. With DMS levels sufficient to saturate GCR, equilibrium was approached after 90 min. GCR levels, in sites/cell, were 2,827-90,300 (mean 30,039) for patients with ALL and 2,348-40,936 (mean 14,207) for patients with AML. Normal lymphocytes had 1,926-11,438 (mean 6,620) sites/cell. Among patients with ALL GCR levels for 13 patients showing good response to glucocorticoid therapy were 15,050-90,300 (mean 45,451, median 32,508); for 7 patients relapsing within 1 yr 7,525-

58,996 (mean 28,233, median 24,682); for 14 poor responders 2,227-22,876 (mean 7,765, median 4,816). Differences between good responders and poor responder were significant; differences between good responders and early relapsers were not significant. GRC levels can apparently be used to predict, to some extent, response to glucocorticoid therapy in patients with ALL, but not to predict duration of remission. (30 Refs)

24. HODGKIN'S DISEASE: TREATMENT WITH LOW DOSE RADIATION AND CHEMOTHERAPY.

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Front Radiat Ther Oncol; 16:122-133 1982

After staging laparotomy and splenectomy, 48 children with Hodgkin's disease were given low-dose radiotherapy (RT: 1,500-2,500 rads according to bone age) and six cycles of MOPP therapy (nitrogen mustard, vincristine, procarbazine, and prednisone). Prednisone was omitted if mantle RT was given. Involved-field RT was given to Stage IA and IIA patients, total lymphoid RT (TLR) to Stage IB-IIIsA patients, and maintenance MOPP to Stage IV patients with bone marrow involvement (IVm). Booster RT (3,000-3,500 rads) was given to 159 nodal sites (not overlying the axial skeleton) which did not regress completely after RT and/or MOPP therapy. One of these nodal sites recurred after 18 mo and regressed after further RT; the patient remained recurrence-free (NER) thereafter. Two Stage IVm patients failed to respond to treatment and died within 6 mo. The other 46 patients were alive and 45/46 were continuously NER after a median of 3 yr. A few patients remained NER and showed no detectable developmental abnormalities after 10 yr of follow-up. The early side effects of treatment, including thyroid dysfunction in 4/24 children tested, were reversible and not severe. Shielding was applied to prevent RT damage to the heart, lungs, and gonads, apparently with success. The late effects of RT on bone growth were directly proportional to the dose and vol and inversely proportional to the patient's age at diagnosis. High-dose TLR led to a disproportionate change in sitting height as compared to standing height, especially in patients treated in early childhood (less than 6 yr old) or adolescence. The number of prepubertal boys was too small and the follow-up time too short to assess the effects of MOPP on testicular function. No second malignancies were noted during the follow-up peri od. (27 Refs)

25. TREATMENT OF ACUTE LYMPHOBLASTIC LEUKEMIA. RESULTS IN 1,192 PATIENTS.

Sackmann Muriel F, Bustelo P, Pavlosky S, Eppinger-Helft M, Svarch E, Braier JL, Garay R, Vergara B, Birman V, Peralver J, Kvicala R, Divito J, Fallace R, Dibar E
Hospital de Ninos, Buenos Aires, Argentina
Medicina (B Aires); 41(Suppl):5-14 1981

Between 1967-1978 1,005 children (less than 15 yr old) and 187 adults underwent treatment for acute lymphoblastic leukemia (ALL). All the patients were evaluated in April of 1981. None of the patients received any previous treatment. Four different protocols were used, all of them included vincristine (VCR), prednisone (PRED), daunorubicin (DNR), and methotrexate (MTX). Complete remission was achieved in 872/1,005 of the children and in 113/187 of the adults. Induction therapy with DNR, VCR, and PRED was more effective than only VCR and PRED. Prevention of CNS involvement was accomplished effectively with cranio-cervical radiotherapy (2,400 rad) and 5 doses of the intrathecal administration of MTX. Additional administration of MTX and dexamethasone did not improve the results. Intensification phase with l-asparaginase or arabynosyl cytosine (AC) and cyclophosphamide (CY) did not improve the results of the not treated control group. In maintainance phase best results were obtained with daily doses of 6-mercaptopurine and MTX twice weekly. Reinforcement with AC and CY alternating with VCR and PRED prolonged complete remission in children with initial WBC less than 50,000/ml. Adjuvant immunotherapy with levamisole prolonged the complete remission and increased survival. (25 Refs) (In SPA)

26. INTRATHECAL RADIOGOLD APPLICATION FOR MENINGOSIS 'PROPHYLAXIS' IN CHILDREN WITH LEUKEMIA AND NON-HODGKIN'S LYMPHOMAS.

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Radiobiol Radiother (Berl); 22(5):659-669 1981

Experience with application of 198Au-radiocolloid gold (RG) for meningosis 'prophylaxis' (MP) in children with leukemia and non-Hodgkin's lymphoma (NHL) is reported. Between 1976 and 1980, 122 children were treated with RG; 108 for MP and 14 for diagnosed meningosis. Four treatments had to be repeated because of insufficient RG distribution, 75 children had new diseases of acute lymphoblastic leukemia (ALL), 5 had NHL, and 6 children had acute myeloid leukemia (AML). Intrathecal RG application with diagnosis and indications, insufficient RG distribution in the cerebral subarachnoid space in children with ALL, MP results in children with leukemias and NHL, and MP results in children with ALL 2-5 yr after treatment start are presented. Among children with NHL, one simultaneous CNS and retrobulbar recurrence occurred. In 3 children with AML, ALL occurred after 5 yr remission, and in 15 with ALL following a hematological recurrence, no CNS recurrences were observed. Twenty-five children (48%) with ALL after RG application are still in complete remission. The results are similar to those obtained with telecobalt irradiation of the scull in combination with intrathecal methotrexate injections but without their side-effects. (In GER)

27. INTRATHECAL RADIOGOLD APPLICATION FOR MENINGOSIS 'PROPHYLAXIS' IN CHILDREN WITH LEUKEMIA AND NON-HODGKIN'S LYMPHOMAS. II. RESULTS AND PROBLEMS FROM THE NUCLEAR MEDICAL POINT OF VIEW.

Brunhober J, Tautz M, Deckart H, Dorffel W
Nuklearmedizinische Klinik, Stadisches Klinikum Berlin-Buch, Wiltbergstr. 50, DDR-1151 Berlin-Buch, E. Germany
Radiobiol Radiother (Berl); 22(5):670-678 1981

Between 1976 and 1980, 122 children with acute leukemia (AL) and non-Hodgkin's lymphoma (NHL) received intrathecal 198Au-colloid gold (CG) injection and the effects were studied; 108 children were treated for meningosis prophylaxis (MP) and 14 for already diagnosed meningosis. Fifty-seven children were evaluated semiquantitatively (29 girls, 28 boys, 1-14 yr old) for distribution besides the scintigraphic control. Dosese were applied according to the age of patients: 1.5 mCi to 3 patients (1-2 yr old), 2.0 mCi to 1 patient (2 yr old), 2.5 mCi to 1 patient (3 yr old), 3.0 mCi to 41 patients (3-12 yr old), 3.5 mCi to 8 patients (10-13 yr old), and 4.0 mCi to 3 patients (13-14 yr old). Normal CG distribution in cerebral and spinal liquor and liver, and CG distribution in cerebral liquor in children with AL and NHL are presented. Fifteen of 57 children did not receive a sufficient dose to the subarachnoid space. Dosimetric problems arise in the irregularities of distri-

bution in the arachnoid space, and computed tomography should be applied for diagnosis. Results of MP with CG can be compared with those obtained for telecobalt therapy with respect to the recurrences. Comparison of both methods is limited because they are based on a different radiobiological effect. (55 Refs) (In GER)

28. SERUM COPPER AND ZINC LEVELS AND COPPER/ZINC RATIO IN PEDIATRIC NON-HODGKIN'S LYMPHOMA.

Gozdasoglu S, Cavdar AO, Arcasoy A, Akar N
Gaziosmanpasa Ilkadim, Sok, 9/10, Ankara, Turkey
Acta Haematol (Basel); 67(1):67-70 1982

Forty patients, 15 females and 25 males, with biopsy-proven non-Hodgkin's lymphoma within the age range of 2-16 yr were included in this study. The mean serum zinc level in 38 untreated patients was 78.95 +-18.80 ug% and significantly lower than in controls (p less than 0.001). The mean serum copper level in 40 untreated patients was 2 +-49.44 ug% and significantly higher than in controls, (p less than 0.001). The mean copper/zinc ratio in these patients was 2.75 and was found to be significantly h igher than in controls (p less than 0.01). Copper levels were lower during remission (p less than 0.05). Our data indicate that serum copper levels and the copper/zinc ratio might be indicators for disease activity in children with non-Hodgkin's lymphoma. (Author abstract) (12 Refs)

29. PHASE II STUDY OF 4'-(9-ACRIDINYLAMINO)METHANESULFON-M-ANISIDIDE (NSC 249992) IN CHILDREN WITH ACUTE LEUKEMIA AND LYMPHOMA.

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Dept. Pediatrics, Memorial Sloan-Kettering Cancer Center, 1275 York Ave., New York, NY, 10021
Cancer Res; 42(4):1579-1581 1982

Phase I clinical studies of 4'-(9-acridinylamino)methanesulfon-m- anisidide (AMSA) using several dose schedules have shown acceptable toxicity and antitumor responses in acute leukemia and several carcinomas. Thirty-eight children with acute leukemia and non-Hodgkin's lymphoma were treated with AMSA in a total dose of 140 to 600 mg/sq m given as a daily iv infusion in 2 to 5 days. Maximal tolerated dose was 600 mg/sq m given in 5 days. Complete and partial remissions were seen in 4 of 18 patients with acute lymphocytic leukemia, 0 of 8 patients with acute nonlymphocytic leukemia, and 1 of 5 patients with non-Hodgkin's lymphoma. Marrow aplasia and remissions were also seen with lower doses. The major toxic effects were mucositis, fever, and sepsis which were dose related. Mild nausea and vomiting, transient elevation of serum glutamic oxaloacetic-acid-transaminase, and bilirubin were noted. All of these patients had had prior anthracycline therapy. Abnormal echocardiograms were seen in 14 of 23 patients who had echocardiograms done before and after AMSA. Seven developed congestive heart failure in association with sepsis in five and with epicardial disease in one. We conclude that AMSA possesses significant activity in childhood leukemia and lymphoma and that studies of AMSA in combination with other effective agents should be done. (Author abstract) (25 Refs)

30. ANAPHYLACTOID REACTIONS TO ESCHERICHIA COLI AND ERWINIA ASPARAGINASE IN CHILDREN WITH LEUKEMIA AND LYMPHOMA.

Evans WE, Tsiatis A, Rivera G, Murphy SB, Dahl GV, Denison M, Crom WR, Barker LF, Mauer AM
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Cancer; 49(7):1378-1383 1982

The incidence and clinical characteristics of anaphylactoid reactions to iv asparaginase were assessed in 196 patients given E coli asparaginase and 49 patients given Erwinia asparaginase. All patients were given a 50 IU iv test dose followed in 30 min by the full dosage (10,000 IU/m(2)), if no reaction occurred to the test dose. Twenty-nine of 196 patients (14.8%) given E coli asparaginase had an anaphylactoid reaction, occurring after their first through 12th doses. The probability of an anaphylactoid reacti on was significantly greater in those patients not receiving concomitant prednisone-vincristine and patients with a hiatus between courses of asparaginase therapy. By logistic regression analysis, other variables such as age, sex, race, diagnosis, total number of doses and concurrent methotrexate or arabinosylcytosine did not contribute significantly to the probability of a reaction. Twenty-three of the patients who had reacted to E coli asparaginase and 26 patients who had not reacted to E coli asparaginase were subsequently given Erwinia asparaginase. Seven of these 49 patients (14%) had an anaphylactoid reaction. The probability of a reaction to Erwinia asparaginase was significantly related to a prior reaction to E coli asparaginase, concomitant prednisone-vincristine therapy, total number of asparaginase doses, number of prior E coli asparaginase doses, and diagnosis, when assessed by a logistic regression model. However, after adjusting for prior reaction to E coli asparaginase and the total number of asparaginase doses given, the other variables did not contribute significantly to the probability of a reaction. Only 5/29 patients reacting to E coli asparaginase and 1/7 reacting to Erwinia asparaginase had a reaction to the test dose. None of the reactions were fatal. (Author abstract) (17 Refs)

31. BONE MARROW TRANSPLANTS.

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Front Radiat Ther Oncol; 16:86-89 1982

Bone marrow transplantation (BMT) following total-body irradiation and high-dose chemotherapy is the only new treatment introduced in the past 10 yr which has offered the chance of improving the prognosis in children with acute lymphocytic leukemia in relapse and acute nonlymphocytic leukemia in the initial stage. The risk of fatal acute graft-vs-host disease (GVHD) seems to be reduced if the BMT is given during remission. These patients are at risk of early or late leukemic relapse (especially CNS relapse) and debilitating chronic GVHD (which seems to have an antileukemic effect, however). Children given intrathecal methotrexate following BMT are at risk of developing necrotizing leukoencephalopathy. Despite these current difficulties, the lessons learned from 10 yr of experience in BMT for acute leukemia may find application in other pediatric malignancies. (18 Refs)

32. LEUKEMIC INVOLVEMENT OF THE OVARIES IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA.

Zarrouk SO, Kim TH, Hargreaves HK, Ragab AH
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J Pediatr; 100(3):422-424 1982

As children with acute lymphocytic leukemia survive longer, leukemic involvement of the testes is being recognized more frequently and testicular biopsy, even in asymptomatic patients, is being performed on a routine basis. However, leukemic involvement of the ovaries has received little attention, and the significance of ovarian-associated relapse in relation to the eventual outcome of the patient has not been investigated. We describe two female patients with ALL who completed three years of chemotherapy. Both developed ovarian-related relapses after cessation of therapy. (Author abstract) (11 Refs)

33. IDENTIFICATION AND PARTIAL CHARACTERIZATION OF SPECIFIC ANTIGEN ON ACUTE LYMPHOBLASTIC LEUKEMIA IN CHILDREN.

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Mie Med J; 31(1):57-63 1981

Identification and partial physical and chemical characterization of tumor-specific antigen (TSA) associated with acute lymphoblastic leukemia (ALL) are reported. Peripheral blood samples were obtained from patients with clinically and cytologically diagnosed ALL upon admission to the hospital. Cells were classified as T cell, B cell, or non-T non-B ALL. Also studied were Molt-4B (T cell ALL) and Raji (B cell ALL) cell lines. Rabbit antisera were raised against ALL cells and purified. In indirect immunofluorescence tests, the rabbit antisera reacted with 34/37 non-T non-B samples, 1/4 T cell samples, and no B cell, acute myeloblastic leukemia, chronic lymphoblastic leukemia, chronic myeloblastic leukemia, or Molt-4B samples. The antisera did not react with fetal thymocytes, fetal bone marrow, cord blood, neuroblastoma cells, or normal bone marrow cells. TSA from leukemic cells was extracted by the 3 M-KCl method. In immunoprecipitation tests antiserum reacted with a component of mol wt of 80,000-90,000 daltons. Extracts from non-ALL cells did not react with antisera. The isoelectric point of the TSA was pH 4-5. Results indicate that non-T non-B and a limited number o T cell ALL have a TSA of mol wt 80,000-90,000 daltons. (18 Refs)

34. THE PROGNOSTIC VALUE OF BONE INVOLVEMENT IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA.

Pastore G, Miniero R, Cordero di Montezemolo L, Felicioni V, Fiandino G, Grazia G, Morgando MP, Trada M, Madon E
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Haematologica (Pavia); 66(6):750-755 1981

Complete skeletal radiographic study was performed in 99 children with acute lymphoblastic leukemia (ALL), 58 of them had no bone involvement (BI), 15 had minimal changes of the bones (localized or diffuse demineralization), and 26 had bone lesions characteristic of the ALL (areas of osteolysis in one or more skeletal segments). Treatment consisted of different protocols of polychemotherapy. Prophylaxis of CNS was executed with the aid of methotrexate or telecobalt radiotherapy or a combination of both. Distribution of different protocols of polychemotherapy for the treatment of the ALL and prophyl axis of the CNS was evenly divided between the three groups of patients. Nine children with enlarged mediastinum and eight with testicular or ovarian relapse did not show BI at the time of diagnosis. Av duration of complete remission (CR) for the three groups was 42 mo, 39 mo, and 51 mo, respectively Thirty-six mo after diagnosis, 63% of children with BI in less than three bones were in CR, compared with 74% of the children with BI in more than three bones. No correlation was noted between BI and other prognostic factors. (17 Refs) (In ITA)

35. SURFACE MARKERS IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA.

Liang DC, Hsieh KH, Lin KS
Dept. Clinical Pathology, Coll. Medicine, Natl. Taiwan Univ., Taipei, Taiwan, Republic of China
Taiwan I Hsueh Hui Tsa Chih; 80(11):1160-1168 1981

Sixty-one childhood acute lymphoblastic leukemia (ALL) patients were studied, and the correlation between the immunological classifications and clinical features was explored. Patients with more than 85% of lymphoblasts (LB) in their peripheral blood and/or bone marrow were included in the study. Patients received chemotherapy and after complete remission most received craniospinal irradiation. Two patients with 85% LB were negative for erythrocyte (E) and erythrocyte antibody complement (EAC) surface markers. Among the other 45 patients with bone marrow checked, 6 were E+ALL, 1 was EAC+ALL, and 38 were E-, EAC-ALL. Among nine early cases of ALL, eight were E-, EAC-ALL. For the deceased six patients with E-, EAC- surface markers, the survival was 18-84 mo (mean 45 mo, median 44.5 mo). Among 36 patients entered later (EL) into the study, 6 were E+ALL and 30 E-, EAC-ALL. The initial clinical features of EL patients are shown. Comparison of 6 E+ and 30 E-, EAC- cases, respectively, showed that median age of onset was 10 and 6 yr, male to female ratio was 5:1 and 14:16, white counts greater than 20 x 10(3) cubic mm in the former and less than 20 x 10(3) cubic mm in the latter, and 4 mediastinal involvements in the E+ group compared with 1 in the E-, EAC-group. Actuarial curves of EL are presented. The E+ group had higher mortality rate (66.6%) and shorter duration of survival (median 7.0 mo, mean 9.0 mo) than the E-, EAC-group. Results indicate that ALL is a heterogeneous disease with respect to clinical characteristics and prognosis. (39 Refs)

36. RESULTS OF INTENSIVE TREATMENT OF 426 CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA.

Michalewska D, Radwanska U
I Klinika Chorob Dzieci, Instytut Pediatrii AM, ul. Szpitalna 27/33, 60-572 Poznan, Poland
Acta Haematol Pol; 12(3/4):175-184 1981

The treatment of 426 children with acute lymphoblastic leukemia is described. Vincristine [VCR: 1.5 mg/square meter (m2) iv] with or without rubidomycin (RBD: 25 mg/m2 iv) was used for remission induction therapy, and the combination of VCR, methotrexate (12 mg/m2 intrathecally with cranial irradiation, and 20 mg/m2 po), cyclophosphamide (200 mg/m2 po), prednisone (40 mg/m2 po) and 6-mercaptopurine (50 mg/m2 po) for maintenance therapy. The remission induction therapy was completed in 393/426 patients: the complete remission rate was 384/393. One hundred and eighty-one patients developed recurrences during the maintenance therapy, and 141 patients died during the first remission, including 123 who died of recurrence of leukemia. Seventeen patients died during long-term remissions. The change of 5-yr survival was found to be

44.8%. The av length of remission has been 50.1 + 2.7 mo so far. Two hundred and eleven patients, including 85 in first remission and 71 with treatment completed, were alive at the time of reporting. The chance of 5-yr survival in another group of patients who were subjected to less aggressive treatment was only 1.2%, and the av lengths of remissions and survival were also significantly shorter. (22 Refs) (In POL)

37. LEUKEMIA: HISTORICAL DEVELOPMENT OF CANCER THERAPY: THE FIRST BATTLE IS WON.

Evans AE
Div. Oncology, Cancer Center, Children's Hosp. Philadelphia, Univ. Pennsylvania, Philadelphia, PA, 19104
Front Radiat Ther Oncol; 16:18-29 1982

The combination chemotherapy protocols which had been developed by 1975 increased the 5-yr disease-free survival (DFS) rate to 50% in children with acute lymphocytic leukemia (ALL). Most relapses occur in the first 2.5 yr. When maintenance therapy is given for 5-6 yr instead of 2.5-3 yr, the DFS rate is not greatly increased, except in boys who tend to develop testicular involvement. Studies on the natural history of childhood ALL have led to the formulation of a set of prognostic factors: age (the best prognosis is in children 2-10 yr old), sex (the prognosis is better in girls than in boys), initial WBC count, the presence or absence of CNS involvement and/or a lymphoma syndrome (elevated Hb, markedly enlarged liver, spleen, and lymph nodes, and/or a mediastinal mass), IgG levels (depression of IgG is an unfavorable sign), FAB markers on the leukemic blasts, and marrow status on day 14 of therapy. The presence of B- or T-cell markers on the leukemic cells is not in itself a major factor. The unfavorable prognosis of T-cell ALL is primarily related to its association with older age, male sex, a high WBC count, and a mediastinal mass. If these factors are not present, the occurrence of T-cell markers is not an unfavorable factor in itself. The 5-yr DFS rate in children having a good prognosis is now 90%. It may be possible to achieve equally good results in these patients with less intensive therapy. Recent advances in treatment have not given such good results in acute leukemias other than ALL. High-dose chemotherapy and total-body radiation, followed by bone marrow transplants from an HLA-identical sibling, have led to a 2-yr survival rate of 60%, if this treatment is given during the first remission. The late effects of successful treatment are now being investigated. (30 Refs)

OTHER SOLID TUMORS OF CHILDHOOD

38. LIVER MASSES.

Kassner EG, Friedman AP
Div. Clinical Radiology, State Univ. New York, Brooklyn, NY
Clin Diagn Ultrasound; 8:80-97 1981

Static gray-scale ultrasonographic imaging of the liver is described, with particular attention on mass lesions unique to pediatric patients. Sonographic features of liver neoplasms are described, including primary hepatocellular carcinoma (hepatoblastoma and hepatoma), liver metastases, benign tumors and tumor-like disorders (cavernous hemangioma, infantile hemangioendothelioma, hepatic adenoma, focal nodular hyperplasia, mesenchymal hamartoma, and congenital cystic disease), inflammatory masses, masses of biliary origin, hematoma, and cavernous transformation of the portal vein. (52 Refs)

39. DIAGNOSTIC IMAGING OF FOCAL NODULAR HYPERPLASIA OF THE LIVER DEVELOPING DURING NITROFURANTOIN THERAPY.

Anttinen H, Ahonen A, Leinonen A, Kallioinen M, Heikkinen ES
Dept. Internal Medicine, Univ. Turku, Kiinamyllynkatu 4-8, SF-20520 Turku 52, Finland
Acta Med Scand; 211(3):227-232 1982

An asymptomatic palpable liver tumor developed in a 6-yr-old girl 7 months after commencement of prophylactic nitrofurantoin therapy for recurrent urinary tract infections. The tumor was examined by 99mTc colloid radionuclide scan, compound ultrasonography and angiography. Ultrasonography demonstrated a large, solid tumor (5 x 5 x 8 cm) in the right lobe of the liver which had an echogenic central core surrounded by an area giving low-amplitude echoes. Angiography disclosed that the tumor was well demarcated and hypervascular, containing large tortuous arteries. The uptake of radionuclide in the tumor was normal. The tumor was resected and the pathological findings were typical for focal nodular hyperplasia (FNH) of the liver. The combination of the findings of these three diagnostic imaging methods is probably specific for uncomplicated FNH, a benign and innocuous tumor of the liver. (Author abstract) (15 Refs)

OTHER RELATED CLINICAL STUDIES

40. COMPUTED CRANIAL TOMOGRAPHY IN CHILDREN.

Hassan M
Departement de Radiologie, UER de Bobigny, Hopital Jean-Verdier, avenue du 14 Juillet, 93140 Bondy, France
Ann Pediatr (Paris); 29(3):161-167 1982

Optimal use of brain tomodensitometry (TDM) in pediatrics and economic and methodological problems encountered with TDM use are discussed. Principles of TDM are described. Sedation is usually use in children between 1 and 4 yr old; general anesthesia is rarely necessary. In some cases where neck flexion is necessary intubation and anesthesia may be required. Certain cases are better analyzable following the iv injection of contrast material. Somatic and gonadal radiation exposure during TDM is minimal. Due to problems associated with body temperature regulation, transport, artificial ventilation, ultrasonography will probably replace TDM as a diagnostic technic in newborns and premature infants. Tumors constitute the primary indication for TDM. TDM findings in brain tumors are described. Use of TDM for the diagnosis of nontumoral enlargements of the brain, hydrocephalus, hemorrhagic accidents of newborns and premature infants, brain injuries, cerebral vascular malformations, convulsions, psychomotor retardation, and varied neurologic symptoms are described. Indications for TDM include intracranial hypertension, abnormal increase in the perimeter of the skull, neurological symptoms, suspicion of cerebral hemorrhage, postoperative surveillance, Bourneville's disease, comas of unknown origin, tumor-related neuroendocrine disorders, and brain metastases. New TDM technics are described. (no Refs) (In FRE)

41. COMPUTED TOMOGRAPHY IN THE EVALUATION OF CHEST LESIONS IN THE PEDIATRIC PATIENT.

Ginaldi S, Cunningham G, Davis LJ, Singleton EB
Dept. Radiology, Tallahassee Memorial Regional Medical Center, Tallahassee, FL, 32303
CT; 5(6):511-518 1981

Computed tomography (CT) was used to evaluate chest lesions in 37 patients (19 males, 18 females; 3 day to 17 yr old). Tissue diagnosis was obtained at surgery or by needle biopsy in 34 cases; in three cases, the negative radiologic evaluation was supported by additional studies and clinical follow-up of at least 8 mo. Only contrast-enhanced studies were done. Twelve different histologic types of disease were encountered, including neurogenic tumors (neuroblastoma and ganglioneuroblastoma), lymphoma, yolk sac tumors, thymic masses, Ewing's sarcoma, histiocytosis X, duplication cysts, and inflammatory masses. Useful information was obtained with CT in all patients. In 15 patients, CT findings agreed with the findings obtained by standard chest x-rays. In two cases, however, the clinical impression of chest pathology was not supported either by conventional chest x-ray or by CT. In 9 of the 22 remaining patients, CT better demonstrated the extension of the mass and its relationship with other organs. It was the only modality to give clinical information for therapeutic purposes in 10 patients. CT predicted the true nature of the mass in only four patients, three with benign cystic lesions, and one with calcification in a posterior mediastinal mass associated with vertebral body destruction suggestive of a neurogenic tumor. Representative case reports are presented. (12 Refs)

42. THE RADIATION BURDEN TO THE PATIENT AND ITS REDUCTION IN FLUOROSCOPY, PARTICULARLY IN PEDIATRIC DIAGNOSTICS.

Klein J
Radiologische Klinik, BKH, Hochstrasse 29, 1800 Brandenburg, E. Germany
Z Aerztl Fortbild; 75(21):1018-1022 1981

Problems of radiation burden in conventional and image-intensification fluoroscopy are discussed with emphasis on pediatric diagnostics. Radiological methods should be used only when potential benefits outweigh risks. In general fluoroscopy is indicated only to obtain information about motions or to locate instruments. Factors related to equipment that influence radiation burden include the size of the field, kilovoltage and milliamperage, filtering, radiation scatter screen, focus-to-object distance, duration of darkness adaptation, duration of fluoroscopy, use of radioprotective drugs, and the sensitivity of the imaging apparatus. Factors relating to the patient include the information desired, position of the organ or organs to be studied, and depth of the organ from the body surface. Increasing radiation doses allows better contrast and higher resolution of detail. Proper equipment and planning can reduce the radiation dose to the body surface 20-50-fold. Conventional fluoroscopy using 250 milliR (mR) in direct beam delivers a dose of 4-6 mR/min to the ovaries of a child. Image-intensification television fluoroscopy using dose regulation allows automatic regulation of radiation dosage. The dose level, however, may be too high. Minimizing the dose to the patient requires constant monitoring of actual doses delivered by the equipment being used. (17 Refs) (In GER)

43. PYRUVATE KINASE AND PHOSPHOFRUCTOKINASE ISOZYMES IN CHILDHOOD CANCERS.

Cottreau D, Rousseau-Merck MF, Nezelof C, Kahn A
INSERM U 129, Institut de Pathologie Moleculaire, CHU Cochin, 75674 Paris Cedex 14, France
Pediatr Res; 16(3):199-202 1982

Pyruvate kinase and phosphofructokinase isozymic expression have been investigated in 62 childhood cancers by electrofocusing and immunoneutralization. Isozymic expression was roughly intermediate between that of the corresponding normal adult and fetal tissue. There were unique features distinguishing malignant from both adult and fetal tissues. In addition, phosphofructokinase and pyruvate kinase appeared to be excellent markers for nervous tissue and skeletal muscle differentiation. In neuroblastomas there was a close relationship between the differentiation level of tumors and their isozyme composition. The same phenomenon was observed in rhabdomyosarcomas and teratomas. (Author abstract) (27 Refs)

44. VINDESINE: A PHASE II STUDY IN CHILDHOOD MALIGNANCIES - A REPORT FOR CANCER AND LEUKEMIA GROUP B.

Ettinger LJ, Brecher M, Coleman M, Smithson WA, Patterson R, Russell EC, Necheles T, Jones B, Ohnuma T
Div. Hematology-Oncology, Childrens Hosp. Los Angeles, 4650 Sunset Blvd., Los Angeles, CA, 90027
Med Pediatr Oncol; 10(1):35-43 1982

Vindesine, a semisynthetic derivative of vinblastine sulfate, was tested for antitumor activity and clinical toxicity in 36 children. The drug was administered to the initial 13 patients entered into the study at 2 mg/m2 day for 5 days by IV bolus. Because of severe neurotoxicity and life-threatening gastrointestinal toxicity, the regimen in 23 patients was modified to 4 mg/m2 IV infusion over 4 hours, weekly. This latter regimen was well tolerated, with acceptable gastrointestinal, hematological, and neurotoxicity. One child with acute lymphocytic leukemia resistant to vincristine had a transient M1 remission bone marrow. Improvement or stable disease was noted in one patient each with Ewing's sarcoma, neuroblastoma, and Hodgkin's disease. (Author abstract) (7 Refs)

45. THE EFFECT OF HYPERTHERMIA ALONE OR IN COMBINATION WITH ACTINOMYCIN D ON THE RNA METABOLISM OF SOLID TUMORS IN CHILDREN.

Willnow U
Clinic Pediatric Surgery, Section Medicine, Karl-Marx-Univ., 7021 Leipzig, E. Germany
Neoplasma; 28(6):721-727 1981

The incorporation of 3H-uridine into the RNA was studied under normothermia 37 C/120 min, hyperthermia 42.5 C/120 min, and both in combination with Actinomycin D by an autoradiographic in vitro method in 19 solid tumors of children: 6 Wilms' tumors, 5 neuroblastomas, 4 osteogenic sarcomas, and 4 different tumors. Hyperthermia invariably reduces the 3H-uridine incorporation into RNA by 11.7-86.4%, with an av of 47.5%. Actinomycin D consistently inhibits the 3H-uridine incorporation between 27.7 and 99.8% with the av inhibition of 62.0% being far greater than that recorded for hyperthermia. The highest degree of 3H-uridine incorporation inhibition is obtained using hyperthermia in combination with Actinomycin D. The inhibition varies from 45.5-99.8%, with an av of 81.4%. In spite of the general regularity, the effect of hyperthermia and Actinomycin D are characterized by individual patterns. Obviously, they are dependent on proliferative activity rather

than upon the particular type of tumor. The use of supranormal temperatures for the treatment of malignant tumors in man, also in combination with radiation or cytostatic drugs, is a possible and promising method of therapy. (Author abstract) (38 Refs)

46. DELAYED TOXICITIES OF CHEMOTHERAPY ON CHILDHOOD TISSUES: 1981 UPDATE.

Bleyer WA
Fred Hutchinson Cancer Res. Center, Children's Orthopedic Hosp. and Medical Center, Univ. Washington, Seattle, WA, 98105
Front Radiat Ther Oncol; 16:50-54 1982

In general, children (less than 15 yr old) tolerate the long-term toxicities of antitumor agents better than adults, but some exceptions have been discovered. Cerebral radiotherapy (RT: 2,000 rads) and intrathecal methotrexate may lead to a deficit of intellectual function, especially if this treatment is given to a child less than 5 yr old. High cumulative doses of daunomycin or adriamycin (greater than 550 mg/square meter) are more likely to cause congestive heart failure in children than in adults. Gonadal development in both sexes and the outcome of pregnancy in women treated with intensive chemotherapy during childbearing years do not seem to be impaired, although adolescent boys may show germ cell and Leydig cell dysfunction during chemotherapy. Second malignancies do not seem to be a major late effect of chemotherapy for childhood cancer; most such malignancies have been attributed to RT and/or genetic factors. (13 Refs)

47. ACUTE AND LONG-TERM CYTOGENETIC EFFECTS OF TREATMENT IN CHILDHOOD CANCER.

Aronson MM, Miller RC, Hill RB, Nichols WW, Meadows AT
(c/o Nichols), Inst. Medical Res., Camden, NJ, 08103
Mutat Res; 92(1/2):291-307 1982

The frequencies of chromosomal aberrations and sister chromatid exchanges (SCEs) in peripheral blood lymphocytes (PBL) were studied in 13 patients (1-18 yr old) receiving radiotherapy (RT) and/or chemotherapy for childhood cancer, in 17 long-term survivors (LTS) of childhood cancer whose last chemotherapy and/or RT had been given 6 mo-35 yr previously (3-7 yr in 10/17, 10-35 yr in 4/17), in 9 pediatric cancer patients who had not yet received RT or chemotherapy, and in 17 healthy subjects (2-73 yr old). In the combined control group, the mean SCE frequencies (4.0-9.6 SCEs/PBL) were the same in healthy subjects as in untreated cancer patients. Abnormal karyotypes were noted in 4/266 cells (0.015%) from the untreated cancer patients, in 42/332 cells (0.127%) from cancer patients receiving chemotherapy and/or RT, and in 9/433 cells (0.021%) from the LTS group. The abnormal karyotypes were usually chromosome breaks or structural rearrangements. Mean SCE frequencies were significantly above control values (3.3-33.7 SCEs/cell) in the cancer patients receiving treatment but not in the LTS group (means, 4.6-9.7 SCEs/cell). The numbers of SCE and breakage figures in the PBL of treated cancer patients varied widely from one patient to another, but treatment-induced increases in SCE figures were not necessarily correlated with increased levels of breakage-type chromosomal aberrations. The normal frequency of SCEs in the LTS group suggested that chromosomal damage leading to SCEs was either lost (through repair or selection) or could not be detected by the assay technique if the post-treatment interval was long. When these subjects were added to a larger group of LTS subjects, the frequency of chromosomal aberrations in the PBL (49/1,712 cells) was significantly above the control level. (62 Refs)

48. MALIGNANT GERM CELL TUMORS IN CHILDREN.

Ablin AR
Dept. Pediatrics - M650, Univ. California Sch. Medicine, San Francisco, CA, 94143
Front Radiat Ther Oncol; 16:141-149 1982

A combination of vinblastine, bleomycin, cis-diamminedichloroplatinum(II), actinomycin D, adriamycin, and cyclophosphamide was given to 17 children with ovarian germ cell tumors and 12 children with germ cell tumors of other sites excluding testicular. Second-look surgery was performed after the first 18 wk of chemotherapy, which was continued for a total of 102 wk. Radiotherapy was given if second-look surgery disclosed residual disease, before chemotherapy was resumed. All patients showed either complete (CR) or partial tumor regression (PR). The follow-up times were too short for evaluation, but 8/12 patients with nonovarian tumors had no evidence of disease (either at second-look surgery or in follow-up diagnostic imaging and assays of biologic markers) and 13/17 patients with ovarian tumors showed CR. Five patients were still being treated at the time of report and were not yet evaluable. Five patients died with recurrences following either a CR (3/5) or PR (2/5). Three of the patients who died had disseminated or ruptured ovarian tumors at diagnosis. It is concluded that in this decade, the survival rates of children with malignant germ cell tumors may reach 80-90%. (23 Refs)

49. RADIATION SENSITIVITY AND ORGAN TOLERANCES IN PEDIATRIC ONCOLOGY: A NEW HYPOTHESIS.

Rubin P, Van Houtte P, Constine L
Div. Radiation Oncology, Univ. Rochester Medical Center, Rochester, NY, 14627
Front Radiat Ther Oncol; 16:62-82 1982

Tissues and organs are most sensitive to radiation (RT) during the stage of fetal organogenesis. The postnatal sensitivity of a given organ to RT varies from one organ to another, being greatest just before and at the onset of proliferative activity. Four general pattern of organ growth have been identified: postnatal and pubertal growth spurts (bone, muscle, circulatory organs, digestive organs); rapid postnatal growth, slowing in late infancy and ceasing in adolescence (neural, respiratory, and renal systems); low activity during childhood with rapid development just before and coinciding with puberty (breast and gonads); and gradual evolution and involution to the time of puberty (lymphoid tissues). The periods of proliferation, hypertrophy, and maturation of the lung and many other organs have not been fully elucidated. An organ increasing in size and wt due to cell proliferation is more sensitive to RT than an organ in a stage of cellular hypertrophy. RT and chemotherapy can have additive effects on a tissue even when given in safe schedules at widely separated intervals, as indicated by the intellectual deficits observed in some children given cranial RT and intrathecal methotrexate at an early age (less than 6 yr old). The correction factors applied for RT dosages must take into account the state of maturation of the exposed organ, not simply the child's chronological age. The recommended RT doses for several organs (heart, k idney, lung, and liver) are about the same in children as in adults. (52 Refs)

50. HUMAN LEUKOCYTE INTERFERON FOR THE TREATMENT OF VARICELLA IN CHILDREN WITH CANCER.

Arvin AM, Kushner JH, Feldman S, Baehner RL, Hammond D, Merigan TC
Dept. Pediatrics, Stanford Univ. Sch. Medicine, Stanford, CA, 94305
N Engl J Med; 306(13):761-765 1982

Results of interferon (IF) treatment of varicella (VA) in children with cancer (CA) are presented. Forty-four patients with CA and VA were enrolled in two consecutive randomized, double-blind placebo-controlled trials. Patients were eligible for the study if they were receiving chemotherapy at the onset of VA or they had received radiation therapy within the preceding mo, and if treatment could be instituted within 72 hr after the appearance of exanthem. Nine of the 18 patients enrolled in the initial trial (1974-1977) received IF at doses of 4.2 x 10(4) to 2.5 x 10(5) units (U)/kg body wt/day until no new vesicles had appeared for 24 hr. The av duration of therapy was 6.4 days. In the second trial (1978-1981) 14 of 26 patients received IF at an initial dose of 3.5 x 10(5) U/kg body wt/day for 48 hr, followed by 1.75 x 10(5) U/kg body wt/day for 72 hr. The IF and placebo groups were compared with respect to underlying disease, number of days from onset of VA to enrollment in the study, number of lesions at entry, and initial white-cell and platelet counts. Sixteen of 23 IF recipients and 14/21 placebo recipients had acute lymphocytic leukemia. Treatment with IF had a significant effect on the number of days of new lesion formation in immunocompromised patients with VA. Ninety percent of IF recipients had no new lesions for at least 24 hr by day 7 after enrollment, compared with 56% of placebo recipients. The overall incidence of fatal and life-threatening VA was 8.7% (2/23) in the IF group and 28.6% (6/21) in the placebo group. Results indicate that IF has an antiviral effect against VA virus in immunocompromised patients. (13 Refs)

51. NUTRITION OF CHILDREN WITH CANCER.

van Eys J
Dept. Pediatrics, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., Houston, TX, 77030
Front Radiat Ther Oncol; 16:177-183 1982

The prevalence of malnutrition at diagnosis in children with cancer varies from one disease to another. Ewing's sarcoma, neuroblastoma, and tumors metastatic to and from bone predispose to malnutrition. The malnutrition that may be present at diagnosis is generally acute in onset and manifested primarily by a low wt for the child's height and age. Malnutrition at diagnosis appears to be an unfavorable prognostic factor. Some of the causes of malnutrition in cancer patients are obvious (mechanical obstruction, nausea and vomiting, anorexia, postoperative ileus, malabsorption, and the metabolic viciou s cycle of cachexia). Other causes are treatment-related and sometimes psychogenic. Certain antitumor agents cause severe nausea. Patients receiving chemotherapy may develop an aversion to foods they formerly enjoyed. Malnutrition can be treated by iv hyperalimentation, but prevention is more important. A kitchen on the ward can allow the patients to select their own foods at their own times. Learned food aversions must be avoided if possible and recognized when they develop. Family therapy techniques may be necessary to deal with psychogenic food aversions. (26 Refs)

52. SCHOOL ATTENDANCE OF CHILDREN WITH CANCER.

Cairns NU, Klopovich P, Hearne E, Lansky SB
Dept. Pediatrics, Univ. Kansas Medical Center, 39th and Rainbow, Kansas City, KS, 66103
J School Health; 52(3):152-155 1982

School attendance records for 2 consecutive yr were studied for 55 children with cancer (32 boys, 23 girls; 23 were 5-8 yr old, 13 were greater than 12 yr old). The first data collection was made less than 1 yr after diagnosis in 28/55 and greater than 3 yr after diagnosis in 10/55. Eleven children died after the 2-yr study period, before the beginning of the next school yr. School attendance varied widely (43-178.5 days of the 180-day school yr). Two disease-related factors were significant predictive variables: the outcome of the disease and CNS chemotherapy. Since CNS chemotherapy is given at intervals for 1 yr or more, absences due to the treatment and its side effects can occur repeatedly during a protracted period of time. The possibility that CNS chemotherapy may lead to perceptual problems or learning disabilities is being investigated. School attendance was higher in boys than in girls. The reason for this finding is not clear, but boys may be expected not to give in to illness and girls may be more readily excused from normal activities on account of illness. Children from small communities show better school attendance than those from large cities (greater than 100,000 population). It is suggested that the school staff may have a closer relationship between the child and family in a small community than in a large city. Children with cancer should be encouraged to participate in school activities with their peers as much as possible. Home instruction should be given only until regular school attendance can be resumed. (5 Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

53. EPIDEMIOLOGIC CHARACTERISTICS OF CHILDHOOD CANCER.

Austin DF, Nelson VE, Johnson LF
Resource for Cancer Epidemiology, Health Services, 1450 Broadway, Oakland, CA, 94612
Front Radiat Ther Oncol; 16:9-17 1982

In the San Francisco metropolitan area, the incidence of malignancies in childhood (0-19 yr old) remained substantially unchanged over a 10-yr period (1969-1978), but the mortality rate declined substantially in all pediatric age groups. The mortality/incidence ratio in all age groups combined declined by about 20% during this time, apparently reflecting improved treatment procedures. These changes have been greater in children 0-14 yr old than in the 15-19 age group. Examination of mean annual age-specific mortality rates for the leukemias suggests that leukemias (especially acute leukemias) of childhood and adulthood may be etiologically different diseases. There responses to treatment suggest that they may be biologically different diseases. Possible etiologic factors for childhood leukemia include prenatal radiation exposure, chromosomal abnormalities, and possibly antigenic stimulation of the WBC population at a critical period of gestation by certain biologic agents. The children of women who had been in the first trimester of pregnancy during an influenza A epidemic showed a 3-4-fold increase in the risk of childhood leukemia. Investigations of childhood leukemia clusters have almost uniformly been incon-

clusive. A cluster of Ewing's sarcoma (30 recorded cases over an 8-yr period; 20% of the entire 8-yr incidence) has been discovered in one small community (within a 30-block diameter) in the San Francisco area. It is hoped that investigations of such clusters may provide clues for the prevention of the disease. (6 Refs)

54. CYTOGENETIC STUDIES ON FOUR CASES OF NON-ENDEMIC BURKITT LYMPHOMA.

Slater RM, Behrendt H, Van Heerde P
Inst. Human Genetics, Sarphatistraat 217, 1019 BX Amsterdam, The Netherlands
Med Pediatr Oncol; 10(1):71-84 1982

Cytogenetic studies carried out on four children with non-endemic Burkitt lymphoma showed: (1) Two with the typical translocation t(8;14) (q24;1q32); (2) one with a varient t(2;8)(p11;24); and (3) one with apparently normal chromosomes 8 and 14. Additional chromosomal variation was present in all four patients. Two were shown to have a duplication of part of the long arm of chromosome 1 (1q23 to 1q32 and 1q23 to 1q42). Epstein Barr virus studies on two patients showed that one was positive and the other negative. A comparison of these results with other non-endemic cases in the literature has been made revealing a wider range of chromosomal variation than has been hitherto reported for endemic cases. The finding that chromosome 8 is also involved in the variant translocations in Burkitt lymphoma suggests that its changes may contribute more to the tumor development than the 14q+. (Author abstract) (40 Refs)

55. CHILDHOOD CANCER IN OFFSPRING OF TWO WILMS TUMOR SURVIVORS.

Kantor AF, Li FP, Fraumeni JF, Curnen MG, Flaunery JT
Environmental Epidemiology Branch, NCI, C307 Landow Building, Bethesda, MD, 20205
Med Pediatr Oncol; 10(1):85-89 1982

A search was made for cancer among offspring and siblings of 149 Connecticut-bor n children with Wilms tumor reported to the Connecticut Tumor Registry during 1935 to 1973. Nasopharyngeal rhabdomyosarcoma developed in the daughter of a man with unilateral Wilms tumor that also affected his sister. Hodgkin disease developed in the daughter of a women who had unilateral Wilms tumor. One other patient had a sibling with Wilms tumor and three had a sibling with other cancers (2 Hodgkin disease, 1 testicular seminoma). The survey suggests an excess risk of other forms of cancer among the progeny and siblings of Wilms tumor patients. (Author abstract) (18 Refs)

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AUTHOR INDEX WITH CITATION NUMBERS

Ablin AR 48
Acker JD 12
Ahonen A 39
Akar N 28
Albert DM 19
Anderson JR 21
Anttinen H 39
Arcasoy A 28
Aronson MM 47
Arvin AM 50
Austin DF 53
Azuma E 33
Baehner RL 50
Barker LF 30
Baum E 3
Beckwith JB 3
Behrendt H 54
Benton JW 12
Bernard A 20
Birman V 25
Bizer VA 8
Bleyer WA 46
Bloom HJ 18
Boljesik M 5
Boumsell L 20
Bowman WP 20
Braier JL 25
Brecher M 44
Breslow N 3
Brunhober J 26
Brunhober J 27
Bucek M 13
Bukovy G 13
Bustelo P 25
Caillaud J 20
Cairns NU 52
Cavdar AO 28
Chan KW 29
Chaussain JL 15
Chilcote RR 21
Coccia P 21
Coleman M 44
Constine L 49
Cordero di Mont 34
Cottreau D 43
Cowchock S 16
Crom WR 30
Cternik K 13
Cunningham G 41
Curnen MG 55
D'Angio G 3
Dahl GV 30
Danoff BF 16
Davis LJ 41
DeLorimier A 3
Deckart H 27
Denison M 30
Dibar E 25
Divito J 25
Dluholucky S 13
Donaldson SS 24
Donnadieu M 15
Dorffel W 26
Dorffel W 27
Endo S 17
Eppinger-Helft 25
Ettinger LJ 44
Evans A 3
Evans AE 37
Evans WE 30
Exelby P 21
Failace R 25
Feldman S 50
Felicioni V 34
Fernbach D 3
Fiandino G 34
Fischer AQ 14
Flannery JT 55
Fraumeni JF 55
Friedman AP 38
Garay R 25
Ginaldi S 41
Goldobenko GV 8
Gozdasoglu S 28
Graham-Pole J 10
Grazia G 34
Grulich M 26
Hajek J 4
Hammond D 21
Hammond D 50
Hancock C 29
Hargreaves HK 32
Hassan M 40
Hays DM 1
Hazra TA 2
Hearne E 52
Heikkinen ES 39
Hill RB 47
Hitch DC 6
Horniakova M 5
Hrabovsky E 3
Hsieh KH 35
Ido M 23
Jaffe N 7
Jenkin RD 21
Job JC 15
Johnson FL 31
Johnson LF 53
Jones B 3
Jones B 44
Kahn A 43
Kallioinen M 39
Kantor AF 55
Kassner EG 38
Kelalis P 3
Kersey J 21
Kim TH 32
Klein J 42
Klopovich P 52
Kramer S 16
Krous HF 6
Kubota Y 11
Kushner J 21
Kushner JH 50
Kvicala R 25
Lansky SB 52
Leiken S 21
Leinonen A 39
Lemerle J 20
Li FP 55
Liang DC 35
Lin KS 35
Madon E 34
Marquette C 16
Martinez MJ 15
Mauer AM 30
McElwain TJ 10
McGeorge MB 22
McLean WT 14
Meadows A 21
Meadows AT 47
Melvin S 20
Merigan TC 50
Michalewska D 36
Miller DR 29
Miller RC 47
Miniero R 34
Mohanakumar T 22
Mondora A 29
Moragas A 9
Morawetz RW 12
Morgando MP 34
Mulgrew L 16
Murphy SB 20
Murphy SB 30
Necheles T 44
Nelson VE 53
Nezelof C 43
Nichols WW 47
Ohnuma T 44
Oka N 17
Othersen HB 3
Otsuki T 11
Pastore G 34
Patterson R 44
Pavlosky S 25
Payer J 5
Peralver J 25
Pritchard J 10
Pysher TJ 6
Radwanska U 36
Ragab AH 32
Reuter G 26
Rivera G 30
Roger M 15
Rousseau-Merck 43
Rubin P 49
Russell EC 22
Russell EC 44
Sackmann Muriel 25
Sang DN 19
Schimpff RM 15
Shibazaki S 11
Shipman B 2
Siegel S 21
Singleton EB 41
Slater RM 54
Smithson WA 44

Snead OC..... 12
Sonobe M..... 11
Sorell M..... 29
Steinherz LJ..... 29
Steinherz PG..... 29
Svarch E..... 25
Takahashi S..... 11
Takaku A..... 17
Tan CT..... 29
Tautz M..... 27
Tefft M..... 3
Thomas P..... 3
Timukhina VN..... 8
Toran N..... 9
Trada M..... 34
Tsiatis A..... 30
Van Eys J..... 51
Van Heerde P..... 54
Van Houtte P..... 49
Vergara B..... 25
Vrsansky P..... 5
Vrubel F..... 4
Willnow U..... 45
Wilson J..... 21
Zarrouk SO..... 32

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-4
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 5-8
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 9
- NEUROBLASTOMAS AND CNS TUMORS..... 10-19
- LYMPHOMAS AND LEUKEMIAS..... 20-34
- OTHER SOLID TUMORS OF CHILDHOOD..... 35-37
- OTHER RELATED CLINICAL STUDIES..... 38-45
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 46-52

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. RHABDOMYOSARCOMA OF THE NASOPHARYNX.

Eavey R, Weber AL, Healy G
(c/o Weber) Dept. Radiology, Massachusetts Eye and Ear Infirmary, 243 Charles St., Boston, MA, 02114
Ann Otol Rhinol Laryngol; 91(2,part1):230-231 1982

Radiographic characteristics of a nasopharyngeal rhabdomyosarcoma (NR) in a 7-yr-old girl who presented with a 3-wk history of left facial pain are described. A large mass of the

HE 20.3173/2:

nasopharynx that extended to the oropharynx with displacement of the soft palate was noted. A lateral tomographic section through the midsagittal plane of the nasopharynx revealed bone destruction involving the floor of the sphenoid sinus and adjacent basisphenoid. Anteroposterior and axial tomographic findings are described. Radiographic evaluation for diagnosis of NR is discussed. (5 Refs)

2. THE ULTRASTRUCTURE OF PRIMARY CEREBRAL RHABDOMYOSARCOMA.

Masuzawa T, Shimabukuro H, Kamoshita S, Sato F
Dept. Surgical Neurology and Pediatrics, Jichi Medical Sch., Minamikawachi-machi, Kawachi-gun, Tochigi-ken 329-04, Japan
Acta Neuropathol (Berl); 56(4):307-310 1982

Ultrastructure of a primary rhabdomyosarcoma from the left basal ganglia of a 2-yr-old boy is reported. Most of the cells consisted of small, large, and elongated cells. The stroma contained amorphous material without glial processes or filaments and the vasculature was poorly developed. An ill-defined, invaginated cell membrane was observed. Nuclei were large and irregularly shaped. The large, pleomorphic cells contained irregularly arranged specific microfilamentous bundles either randomly distributed or organized in myofibrils with areas suggestive of primitive Z band formation. Variable amounts of microfilaments were observed occupying a large portion of the cytoplasm. Normal cellular organelles were also present. Elongated cells with definite cross-striations appeared similar to normal striated muscle fiber cells. This tumor may have arisen from intraparenchymal or mesenchymal tissue such as the pericapillary tissue or in myoblastic tissue misplaced during embryonic life. (14 Refs)

3. CHILDHOOD RHABDOMYOSARCOMAS OF THE HEAD AND NECK: 2 CASE REPORTS ON SALIVARY GLANDULAR AND PARAGLANDULAR INVOLVEMENT.

Daou RA, Schloss MD
(c/o Schloss), 2300 Tupper St., Montreal, P.Q., H3H 1P3, Canada
J Otolaryngol; 11(1):52-56 1982

Rhabdomyosarcoma is reviewed and two new cases of glandular and paraglandular rhabdomyosarcoma seen and treated at the Montreal Children's Hospital (MCH) are presented. Of 48 cases of rhabdomyosarcoma encountered at MCH within the last 32 yr, 20 involved the head and neck. The cases presented include those of a 7-yr-old male with parotid rhabdomyosarcoma and a 5-yr-old male with submandibular paraglandular rhabdomyosarcoma. Both patients were successfully treated using surgical excision followed by radiotherapy and chemotherapy. This multimodal therapy has proved superior to any single therapy and has eliminated the need for mutilating surgery. Current drugs of choice for chemotherapy are vincristine, actinomycin D, cyclophosphamide, and adriamycin. Radiotherapeutic dose varies depending on patient age and diagnosis, although patients less than 3 yr old do not receive a total dose of greater than 4,000 rad. Supervoltage irradiation is used in 200 rad fractions 5 days/wk. Follow-up of both patients showed no recurrences of metastasis. (20 Refs)

4. KAPOSI'S SARCOMA IN CHILDHOOD. A REPORT OF 3 CASES.

Farrant PJ
Metabolic Unit, Baragwanath Hosp., PO Bertsham, 2013, South Africa
S Afr Med J; 61(17):636-637 1982

Three cases of Kaposi's sarcoma in Black children aged under 4 yr are described. In all cases the diagnosis was made on lymph node biopsy. The difference in presentation of Kaposi's sarcoma in childhood and adulthood is discussed and attention is drawn to the frequency of lymph node involvement in children. Response to combination chemotherapy is encouraging and the potential for long-term survival appears to be good. (Author abstract) (4 Refs)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

5. CYSTIC PARTIALLY DIFFERENTIATED NEPHROBLASTOMA.

Ninane J, Gosseye S, Claus D, Otte JB, Cornu G
Dept. Pediatrics, Cliniques Universitaires St-Luc, 10, Avenue Hippocrate, B-1200 Brussels, Belgium
Helv Paediatr Acta; 36(4):377-382 1981

The ultrasonographic, radiologic, and histological findings in a rare case of cystic partially differentiated nephroblastoma in a 5-mo-old boy are presented. The relationship between multilobular cysts of the kidney, Wilms' tumor, and cystic partially differentiated nephroblastoma in differential diagnosis are discussed. Treatment by nephrectomy and single cytotoxic therapy with vincristine for 6 mo was successful. (15 Refs)

6. CHILDHOOD UROLOGIC CANCER--SEQUELAE OF THERAPY.

Jaffe N
Dept. Pediatrics, Univ. Texas M.D. Anderson Hosp. and Tumor Inst., Houston, TX
Cancer Bull; 34(1):28-30 1982

The major delayed complications encountered when radiotherapy, chemotherapy, and surgery are used in treatment of childhood urologic cancer are reviewed. Radiotherapy produces the most delayed effects, including oncogenesis. Recognition by the physician of abnormalities soon after they appear is a prerequisite for prompt treatment, which is the surest way to reduce a negative impact on survival. (38 Refs)

7. STEROID METABOLISM BY A TUMOUR OF THE SPECIFIC GONADAL STROMA IN A CHILD.

Barmach de Niepomniszcze A, Rivarola MA, Chemes HE, Bergada C
Centro de Investigaciones Endocrinologicas, Hospital General de Ninos, Buenos Aires, Argentina
Acta Endocrinol (Copenh); 99(4):624-629 1982

A study of steroid metabolism by a tumor of the specific gonadal stroma was carried out in a 10 yr old boy. Tumors developed in the two testes from multiple foci, and clinically, no signs of sexual development was evident. Four testicular enzymes necessary for testosterone biosynthesis were estimated in the child, in two adult controls, and in three prepubertal boys with male pseudohermaphroditism but normal tests of Leydig cell function. 17alpha-Hydroxylase and 17beta-hydroxysteroid dehydrogenase were similar in the five controls and in the gonad with the tumor, while 17,20-desmolase and 3beta-hydroxysteroid dehydrogenase were grossly deficient in the child with the tumor. These enzyme deficiencies might explain the absence of peripheral virilization in a boy with a tumor of Leydig and Sertoli cells. (Author abstract) (10 Refs)

8. GENITAL TRACT TUMORS IN CHILDREN.

Breen JL, Bonamo JF, Maxson WS
Dept. Obstetrics and Gynecology, St. Barnabas Medical Center, Livingston, NJ, 07039
Pediatr Clin North Am; 28(2):355-367 1981

The most common type of gynecologic tumor in children less than 15 yr of age is ovarian neoplasm, but it only accounts for about 1% of all malignant neoplasms in girls less than 17 yr of age. Germ cell tumors account for 58-67% of pediatric ovarian neoplasms and are more likely to be malignant the younger the patient. Diagnosis and treatment of malignant and nonmalignant lesions of the vulva, uterus, and cervix are reviewed. The importance of correct diagnosis followed by individualized therapy which preserves reproductive and menstrual function is stressed. (32 Refs)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

9. IMPROVED THREE-YEAR DISEASE-FREE SURVIVAL IN OSTEOGENIC SARCOMA. EFFICACY OF ADJUNCTIVE CHEMOTHERAPY.

Bleyer WA, Haas JE, Feigl P, Greenlee TK, Schaller RT, Morgan A, Pendergrass TW, Johnson FL, Bernstein ID, Chard RL, Hartmann JR
Div. Hematology/Oncology, Children's Orthopedic Hosp. and Medical Center, P.O. Box C5371, 4800 Sand Point Way NE, Seattle, WA, 98105
J Bone Joint Surg [Br]; 64(2):233-238 1982

Of 41 consecutive patients with newly diagnosed osteogenic sarcoma admitted to the Children's Orthopedic Hospital and Medical Center in Seattle, Washington, between 1952 and 1977, 19 treated before 1973 did not receive adjunctive chemotherapy (historical group) whereas after 1972 22 have been so treated (chemotherapy group). Chemotherapy consisted primarily of high doses of methotrexate and adriamycin for 16 mo after surgical treatment. Patients in the historical groups have been observed for a minimum of 9 yr (6 patients) or until death (13 patients). The 13 surviving patients in the chemotherapy group have been followed for a minimum of 3 yr (median 5 yr) and all 12 disease-free patients have been off therapy for between 1 1/2 and 5 1/2 yr (median 3 yr). Overall, the chemotherapy group has had a significant increase in both survival ($p = 0.03$) and disease-free survival ($p = 0.02$) compared to the historical group. In 35 patients with localized disease at diagnosis, the 3-yr disease-free survival and the 3-yr survival rates were 18% and 41% respectively in the historical group, and 67% and 78% (life table estimates) respectively in the chemotherapy group. With adjunctive chemotherapy only one of the seven patients developing pulmonary metastases did so later than 9 mo after diagnosis. The superior results in the chemotherapy group could not be accounted for by differences in age, sex, presence of metastases at diagnosis, histopathology, location of primary tumor, type of initial or subsequent surgical treatment, or the use of standard or computerized lung tomography. Although the use of historical controls in this study does not exclude other changes as contributing to the observed improvement in outcome, our data support the contention that adjunctive chemotherapy improves both the disease-free survival and the overall survival of patients with osteosarcoma and rarely delays the onset of recurrent or metastatic disease. (Author abstract) (12 Refs)

NEUROBLASTOMAS AND CNS TUMORS

10. UNEXPECTED NEUROBLASTOMA OF THE ADRENAL GLAND WITH CONGENITAL MALFORMATIONS IN INFANCY.

Barbet JP, Mace B, Tan Vinh L, Denni J
Service d'Anatomie Pathologique, Hopital Saint-Vincent-de-Paul, 74, av. Denfert-Rochereau, 75674 Paris, France
Arch Anat Cytol Pathol; 30(1):14-19 1982

Five cases of asymptomatic adrenal neuroblastomas are reported. A 4 mo old baby died of respiratory insufficiency due to a malformation of the left pulmonary artery. Autopsy revealed a neuroblastoma of the right adrenal. An infant girl was born with malignant keratomas which did not respond to treatment and the child died 10 days after birth. At autopsy, the right adrenal was found to contain a large nodule made up of groups of neuroblasts within a fibrillary stroma. The left adrenal was normal and there were no metastases. A malformed infant with microcephalia, muscle hypoplasia and thoracic and abdominal anomalies died a few minutes after birth. Histological examination of the two kidneys revealed evident multicystic dysplasia. The right adrenal contained a neuroblastic nodule, but the left adrenal was normal. There were no metastases. An infant boy died of respiratory failure and progressive neurological deterioration 3 days after birth. Autopsy revealed meningeal hemorrhaging, hyaline membrane disease, and bilateral adrenal neuroblastomas. An infant girl died of respiratory and cardiovascular collapse 2 days following birth. Autopsy revealed neonatal pneumonia and two neuroblastic nodules, in the left adrenal. There were no metastases. (18 Refs) (In FRE)

11. INFANTILE NEUROBLASTOMA PRESENTING WITH CUTANEOUS BLANCHING NODULES.

Lucky AW, McGuire J, Komp DM
Dept. Dermatology, Yale Univ. Sch. Medicine, P.O. Box 3333, New Haven, CT, 06510
J Am Acad Dermatol; 6(3):389-391 1982

An 8-wk-old girl presented with blue cutaneous nodules blanching when rubbed. Other findings included a mediastinal mass and ipsilateral Horner's syndrome, spinal cord compression, bone marrow involvement, a retroorbital mass, and skeletal metastases. Stage IV neuroblastoma (with a 2-yr survival rate of 7%) was diagnosed. Radiotherapy (directed to the mediastinal mass) and systemic treatment with cyclophosphamide and corticosteroids caused complete tumor regression within 5 mo. A recurrent skin nodule developed and was excised when the child was 15 mo old. No other evidence of disease was identified. (8 Refs)

12. PRIMARY CEREBRAL NEUROBLASTOMA.

Bascones A, Miguel-Miguel G, Pascual-Castroviejo I, Villarejo F
(c/o Pascual-Castroviejo) Servicio de Neurologia, Clinica Infantil 'La Paz', Paseo de la Castellana, 261, Madrid 34, Spain
An Esp Pediatr; 14(5):366-369 1981

A 13-mo-old baby boy had uncoordinated movements, increased size of the head, and very retarded psychomotor development. Radiography and computed tomography indicated a mass in the left frontal lobe. The mass was surgically removed, and the histologic diagnosis was of neuroblastoma. Follow-up was performed 6, 12, 24, and 30 mo later. The child had severe psychomotor retardation without signs of relapse. (9 Refs) (In SPA)

13. POST-OPERATIVE INTUSSUSCEPTION IN CHILDREN WITH NEUROBLASTOMA.

Cohen MD, Baker M, Grosfeld JL, Siddiqui A
Dept. Pediatric Radiology, Pediatric Surgery, James Whitcomb Riley Hosp. for Children, Indiana Univ. Medical Center, 1100 West Michigan St., Indianapolis, IN, 46223
Br J Radiol; 55(651):197-200 1982

Intussusception following surgery is uncommon, but important. There are no previous reports regarding the incidence of this condition. This study indicates a relatively high incidence of intussusception following abdominal surgery for neuroblastoma (4 of 28 patients). Possible causative factors are discussed. (Author abstract) (15 Refs)

14. PEDIATRIC BRAIN TUMORS.

Bruce DA
Div. Neurosurgery, Children's Hosp., Philadelphia, PA
Surg Rounds; 5(4):22-31 1982

The current status of pediatric brain tumor diagnosis, treatment, prognosis, incidence, and mortality is assessed. Introduction of computed tomography (CT) is in large part responsible for improved early tumor diagnosis, better lesion delineation, increased post-operative survival, and improved long term prognosis in children Angiography is also an important diagnostic technique for tumor assessment. Three tumor types make up about 80% of posterior fossa tumors: medulloblastoma, cerebellar astrocytoma, and brain stem or positive glioma. Each of these tumors has a characteristic presentation, neurological exam, CT findings, therapy after operation, and ultimate outcome. Other tumor types for which diagnostic and therapeutic techniques are presented include parasellar tumors, parapineal lesions, and hemispheric tumors. Diagnostic and therapeutic aspects of tumor recurrence are presented. The long term post-therapeutic quality of survival for pediatric brain tumor patients is assessed. Results of brain tumor therapy in children are encouraging. (9 Refs)

15. ADJUVANT CHEMOTHERAPY WITH PROCARBAZINE, VINCRISTINE AND PREDNISONE FOR MEDULLOBLASTOMAS: A PRELIMINARY REPORT.

Seiler RW, Bernasconi S, Berchtold W, Feldges A, Imbach P, Luthi A, Pluss HJ, Vassella F, Wyss M, Wagner HP
Dept. Neurosurgery, Univ. Hosp., CH-3010 Bern, Switzerland
Helv Paediatr Acta; 36(3):249-254 1981

Following complete tumor resection, 20 children (less than 16 yr old) with confirmed medulloblastomas were given craniospinal radiotherapy (RT: 5,000-6,500 rads to the posterior fossa, 3,500-4,500 rads to the rest of the brain, and 3,000-3,500 rads to the spinal cord). Chemotherapy with procarbazine (150 mg/square meter [m2]/day x 14, po) vincristine (VCR: 1.5 mg/m2/wk x 3, iv), and prednisone (PRN: 40 mg/m2/day x 14, po) was initiated 2 mo after the end of RT and repeated every 6 wk for 8 cycles. Four patients died during chemotherapy (at least 4 courses); none died of toxicity. The other 16 patients were given the full course of chemotherapy, with appropriate dose modifications when side effects developed. Follow-up times were 18-56 mo after tumor resection. The survival rates were 89% at 1 yr, 53% at 2 yr, 44% at 3 yr, and 39% at 4 yr. These survival rates were comparable to those observed in 231 patients treated only with RT (71-74% at 1 yr, 58-60% at 2 yr, 42-50% at 3 yr, and 35-50% at 4 yr). Higher survival rates have been reported for 142 children treated with VCR and lomustine (CCNU, with VCR beginning during RT: 85% at 1 yr, 70% at 2 yr, 62% at 3 yr, and 58% at 4 yr) and 83 children treated with VCR (beginning during RT), CCNU, and PRN (during induction only: 79% at 1 yr, 68% at 2 yr, 65% at 3 yr, and 56% at 4 yr). In this multi-institutional study, the best results were observed among children treated at large medical centers which treated at least 20 pediatric medulloblastoma patients/yr. The experience of the neurosurgeons and radiation oncologists probably influenced the treatment results. (8 Refs)

16. COMPUTED TOMOGRAPHY OF INTRACRANIAL EPENDYMOMAS.

Swartz JD, Zimmerman RA, Bilaniuk LT
Radiology Dept., Hosp. Univ. Pennsylvania, 3400 Spruce St., Philadelphia, PA, 19104
Radiology; 143(1):97-101 1982

Twenty-six patients with ependymoma were evaluated by computed tomography (CT) over a period of 5-1/2 yr. The usual CT appearance was an isodense, partially calcified mass, capable of contrast enhancement, occurring in the posterior fossa (73%) in an infant or child (77%). Outcome remains poor despite modern diagnostic and therapeutic methods. (Author abstract) (16 Refs)

17. EXTRANEURAL METASTASIS OF EPENDYMOMA: A CASE REPORT AND REVIEW OF THE LITERATURE.

Itoh M, Tsugane R, Ohya M, Nojiri K, Sato O, Mori T
Dept. Neurosurgery, Tokai Univ., Isehara, Japan
No Shinkei Geka; 10(1):73-80 1982

A 2 yr 6 mo-old girl with a fourth ventricle ependymoma underwent subtotal removal of the tumor, a ventriculo-peritoneal shunt was inserted, and 4,500 rad to the whole skull was administered over 5 wk. One yr later, spinal seeding was detected and radiotherapy was administered. Six mo later, the child again presented with spinal metastases on the 12th thoracic and 2nd lumbar vertebrae. Metastases were discovered in the third ventricle and the anterior horns of the bilateral lateral ventricles and were treated with further radiotherapy. Spinal metastases were again discovered 6 mo later and a third course of radiotherapy was administered. The spinal tumor disappeared on myelography; occasional urinary incontinence developed. Recurrent tumor of the fourth ventricle was found 3 mo later and treated with radiotherapy. Four mo later the child presented with a poor appetite and abdominal distension; numerous ependymoma cells were found in ascites smear. The patient died shortly thereafter. Autopsy demonstrated seeding of the ependymoma in the third ventricle and entire surface of the spinal cord. No tumor cells were found in the wall of the fourth ventricle. Many disseminated tumors were found in the abdominal cavity; intraabdominal organs were not invaded. Twenty-three other cases of intracranial ependymoma with extraneural metastases were reviewed from the literature. (55 Refs) (In JPN)

18. HISTOLOGICAL AND CLINICAL STUDIES IN RETINOBLASTOMAS.

Sporny S, Fruszczynski M, Sauter K
Zaklad Anatomii Patologicznej, Instytut Patologii AM, ul. Narutowicza 96, 90-141 Lodz, Poland
Patol Pol; 32(3):387-394 1981

The possible relationship between clinical and histological features of retinoblastoma were studied in 29 eyeballs enucleated from 28 children (16 boys and 12 girls). The tumor was unilateral in 20 patients, bilateral in 8. The age at onset of the tumor was less than 1 yr in one boy and four girls, 1-3 yr in

nine boys and seven girls, and more than 3 yr in six boys and one girl. The age of the patients at the time of surgery was 5-77 mo, averaging 27.3 mo, and being lower in the girls than in the boys (14.9 mo vs 34.3 mo). The ages of mothers and fathers of the patients who survived less than 3 yr were 28.3 yr and 32.7 yr, respectively, those of the mothers and fathers of the patients surviving at least 5 yr were 24.4 yr and 27.1 yr. The mortality was 42.9%. The tumor growth was found to be more aggressive in boys than in girls. The histological examinations revealed rosettes in 5/8 patients who survived less than 3 yr, pseudorosettes in 7/8, pronounced polymorphism in 5/8, numerous mitotic figures in 7/8, tumor necrosis in 6/8, and infiltration of the optic nerve, choroid, cornea and orbit in four, five, one, and zero patients, respectively. Rosettes were found in 5/11 patients who survived at least 5 yr, pseudorosettes in 3/11, pronounced polymorphism in 3/11, numerous mitotic figures in 4/11, tumor necrosis in 8/11 and infiltration of the optic nerve, choroid, cornea and orbit in 8, 11, 8 and 7 patients, respectively. Infiltration of the optic nerve, choroid, cornea and orbit is considered as an unfavorable prognostic sign. The presence of rosettes, numerous mitotic figures and marked polymorphism of the tumor cells cannot be considered as a reliable prognostic criteria. (10 Refs) (In POL)

19. CHOROID PLEXUS CARCINOMA - CASE REPORT.

Sugiura M, Himuro H, Tanikawa T, Beppu T, Okino T
Dept. Neurosurgery, Sagamihara Natl. Hosp., Sagamihara, Japan
No Shinkei Geka; 9(10):1199-1204 1981

A case of malignant papilloma of the choroid plexus occurred in an 11-yr-old girl who developed generalized convulsive seizures and complained of headaches from 6 mo prior to diagnosis. The headaches became more severe and eventually were accompanied by nausea and vomiting. Plain craniography, computed tomography, left carotid angiography, and neurological examination revealed two tumors in the anterior temporal lobe and a left lateral intraventricular tumor. Removal of the tumors of the temporal lobe was performed 40 days prior to extirpation of the intraventricular tumor. Surgery revealed multifocally growing tumors separated by a large cyst and edematous brain tissue. Histological examination of the surgical specimen showed tissue similar to a normal choroid plexus but with malignant features of bizarre giant cells, pleomorphism, and occasional mitoses. Different methods of classifying such tumors were discussed. (22 Refs) (In JPN)

LYMPHOMAS AND LEUKEMIAS

20. ACYCLOVIR TREATMENT OF HERPES ZOSTER INFECTIONS. USE IN CHILDREN UNDERGOING BONE MARROW TRANSPLANTATION.

Serota FT, Starr SE, Bryan CK, Koch PA, Plotkin SA, August CS
Bone Marrow Transplantation Unit, Children's Hosp. Philadelphia, 34th St. and Civic Center Blvd., Philadelphia, PA, 19104
JAMA; 247(15):2132-2135 1982

Three patients in whom herpes zoster infections developed following bone marrow transplantation were treated with acyclovir. The patients experienced pain relief within 24 hr of starting treatment. The progression of their skin lesions halted within 1, 2, and 4 days of therapy, respectively, and healed completely within 2 wk of therapy. Pharmacokinetic studies indicated that acyclovir plasma concentration-time profiles approximated biexponential equations. The drug half-lives were 3.91, 3.83, and 3.40 hr, respectively. Acyclovir was not myelotoxic and may be helpful in aborting varicella-zoster virus infections in bone marrow transplant recipients. (Author abstract) (10 Refs)

21. COMPLEX X-RAY DIAGNOSIS OF HODGKIN'S DISEASE IN CHILDREN.

Tsyplenkov VG
Children's Roentgenologic Dept., Res. Roentgenoradiological Inst., Moscow, USSR
Vestn Rentgenol Radiol; (1):71-77 1982

The role of x-ray examination in evaluation of the degree of Hodgkin's disease (HD) dissemination below the diaphragm was studied in 200 children. The x-ray findings were compared with the results of direct lymphography, radioisotope examination of the kidneys, liver, and lymphatic system, and the results of explorative laparotomy with splenectomy. Examination of the gastrointestinal system showed tumoral-ulcerative changes of the stomach, duodenum, small intestine, and large intestine in 7%, 3.5%, 9%, and 1.5% of the patients, respectively. Infiltrative changes in the stomach, duodenum, and small intestine were observed in 29%, 13%, and 23% of the patients, respectively. Indirect (contact) deformation of the stomach, duodenum, small intestine, and large intestine was recorded in 35%, 5%, 13.5%, and 6% of the patients, respectively. Examination of the urinary system showed tumoral changes of the kidneys in 4.5% of the patients, deformation of the ureters in 23%, and deformation of the bladder in 1%. In total, involvement of organs below the diaphragm (Stage IV HD) was diagnosed in 43% of the patients, compared with 29% at direct lymphography and 38% at explorative laparotomy. (17 Refs) (In RUS)

22. IMMUNOLOGICAL EVALUATION OF 22 PATIENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA OFF-THERAPY: A LONGITUDINAL FOLLOW-UP.

Pasino M, Vadala R, DeBernardi B, Comelli A, Mori PG, Dini G, Bisogni MC, Tonini GP, Massimo L
(c/o Massimo) Dept. Pediatric Hematology and Oncology, Giannina Gaslini Inst., Via 5 Maggio 39, I-16148 Genova, Italy
Helv Paediatr Acta; 36(1):69-80 1981

Immune function was studied for 3-42 mo (median 10 mo) after the end of therapy in 22 children (1.5-9 yr old at diagnosis) with acute lymphoblastic leukemia who remained in complete remission during 3 yr of treatment and after the end of treatment. In 8/22 patients, induction therapy consisted of vincristine (VCR), prednisone (PRN), and CNS irradiation (2,400 rads), followed by the L-2 protocol. The other 14 patients were given the IGG-74 protocol: induction with VCR, PRN, L-asparaginase cytoxan (CTX), adriamycin (ADR), intrathecal (ith) cytosine arabinoside (araC), ith methotrexate (MTX), and iv araC; followed by repeated maintenance courses of 6-mercaptopurine, MTX (ith and po), ADR, CTX, VCR, PRN, and carmustine. The effects of the two protocols on immune function were not significantly different. Major deficiencies of T lymphocyte numbers and responses to blastogens (phytohemagglutinin and concanavalin A; pokeweed mitogen responses declined only slightly) were observed in the first 12 mo after the end of treatment, but no significant changes in the B lymphocytes or serum IgM, IgG, or IgA levels were observed. Immunologic recovery was often characterized by a remarkable rebound at 15-18 mo. The immunosuppressive effects of intensive chemotherapy seemed to be transient, mainly limited to the first 3 mo. Almost all patients achieved immunologic reconstitution within 1 yr after the end of therapy. (22 Refs)

23. ABDOMINAL MANIFESTATIONS OF PEDIATRIC LEUKEMIAS: SONOGRAPHIC ASSESSMENT.

Gore RM, Shkolnik A
Dept. Radiology, Univ. California Medical Center, San Francisco, CA
Radiology; 143(1):207-210 1982

The abdominal sonograms of 64 leukemic children were reviewed and correlated with clinical, hematological, and, when available, autopsy findings. Sonographic abnormalities including enlargement of the liver, spleen, pancreas, and kidneys, with or without alteration of parenchymal echo architecture, hydronephrosis, lymphadenopathy, and ascites were encountered in 70% of the patients. Ultrasound proved useful in detecting occult visceral leukemia and relapse, monitoring tumor response to chemotherapy, and assessing the complications of chemotherapy. Ultrasound is recommended for the routine evaluation and follow-up of the pediatric leukemic patient. (Author abstract) (20 Refs)

24. SINUS HISTIOCYTOSIS WITH MASSIVE LYMPHADENOPATHY AND EPIDURAL INVOLVEMENT.

Haas RJ, Helmig MS, Meister P
Kinderklinik der Universitat, Lindwurmstrasse, 8000 Munchen 2, W. Germany
Haematol Blood Transfus; 27:239-243 1981

The case of a 3.5-yr-old girl with sinus histiocytosis with massive lymphadenopathy (SHML) and epidural involvement is presented and relevant literature is reviewed. SHML is characterized by prominent cervical lymph node enlargement. Marked dilation of sinuses with intrasinusal histiocytes and lymphophagocytosis are seen microscopically. Most (approx 70%) patients affected are less than 20 yr old. Since some patients experience spontaneous resolution, SHML is considered benign. Symptoms disappeared in 24/72 patients reported in the literature within 10 yr of diagnosis. SHML persisted in 42 patients 6 mo to 21 yr later. Of the six patients who died, only one died as a result of SHML. Extranodal involvement has been reported in the eyelid and orbit, skin, bone, salivary gland, epidural space, testis, and respiratory tract. Two patients with spinal epidural involvement developed paraplegia, one of these is the case described. Treatment with prednisolone was often effective. In the case cited, prednisolone and vinblastine resulted in disappearance of neurological symptoms. (18 Refs)

25. ACUTE LYMPHOBLASTIC LEUKEMIA IN CHILDHOOD: IMPORTANCE OF SEX AS A PROGNOSTIC FACTOR.

Kuchler H, Buriot D, Maier M, Griscelli C
(c/o Griscelli) Unite d'Immunologie et d'Hematologie, Groupe Hostpitalier Necker-Enfants-Malades, Departement de Pediatrie, 75730 Paris Cedex 15, France
Arch Fr Pediatr; 39(1):17-21 1982

Clinical and biological prognostic criteria were examined in 63 patients (36 males, 27 females; less than 15 yr old) with acute lymphoblastic leukemia (ALL), who had been followed up for 3 or more yr. ALL had been diagnosed in 11 patients less than 2 yr old, in 43 between 2 and 8 yr old, and in 9 patients more than 8 yr old. High WBC counts were observed in 15 patients, and tumors in 31. ALL with high WBC counts were often associated with tumors (12/15 cases); nontumoral forms usually did not have elevated WBC counts (29/32). Increased numbers of WBC were found in 11/36 males and in 4/27 females. Tumors were found in 20/36 males, and 11/27 females. The median number of WBC was 8.4 x 10(9)/ liter for males and 6.2 x 10(9)/liter for females. After 3 yr, 33/63 patients were in first remission. Leukemic relapse was noted in 30 other patients. Hematological (17 patients), meningeal (7), and testicular (4) relapses were observed. Of the 43 patients followed for 5 or more yr, 13 were in first remission while 30 others had relapsed after a mean remission of 24 mo. Of the criteria studied, only sex and elevated WBC levels showed a significant correlation with survival. (38 Refs) (In FRE)

26. ACUTE LEUKEMIA WITH BURKITT'S LYMPHOMA CELLS IN TWO JAPANESE CHILDREN: CLINICAL MANIFESTATIONS AND CELL SURFACE MARKERS.

Kusakari A, Nakazawa S, Takane K, Yamada K
Dept. Pediatrics, Tokyo Metropolitan Children's Hosp., 1-3-1 Umezono, Kiyose City, Tokyo, Japan
Rinsho Ketsueki; 22(12):1962-1970 1981

Two cases of B-cell acute lymphoblastic leukemia (B-cell ALL) that showed cytological characteristics of Burkitt's lymphoma cells are reported. A 3 yr 5 mo old boy complained of vomiting, abdominal pain, fever, and had hyperuricemia. An extensive infiltration of peroxidase negative lymphoblastic cells was noted and the patient was diagnosed for ALL. Blast cells showed basophilic staining with several vacuoles on Wright-Giemsa staining. Surface immunoglobulin of IgM was detected in 84% of blast cells. Positive reactions against anti-B antigen (Ia-like antigen) serum (100%) and anti-common ALL antigen serum (38%) were noted, and the disease was determined to be B-cell ALL. Treatment with prednisolone and vincristine was initiated. Despite a transient cardiac arrest due to hyperkalemia, a complete remission was seen. Four wk later, however, the patient developed meningeal and testicular leukemia and refractory hematological relapse. The patient did not respond to further treatment and expired in 5.5 mo. A 3 yr 3 mo old boy complained of headache, abdominal pain, and pain in the right thigh. A massive infiltration of bone marrow by blast cells with morphological features similar to those in the first patient was observed. Cell surface analysis led to diagnosis of B-cell ALL. IgM was detected in 100% of blast cells, and positive reaction against the same antigens as in the first patient were observed. Meningeal leukemia also occurred. Prednisolone and vincristine treatment was discontinued due to ileoileal interssusception followed by diffuse peritonitis on day 1 of therapy. In 3 wk, a complete remission was seen. In 5 wk, however, refractory hematological relapse developed and the patient died of pneumonia after 3.5 mo. Both patients showed a high rate of surface Ig appearance, negative RBC antibody complement rosette, positive B-antigen (Ia-like), and weakly positive common ALL antigen. These observations suggest that B-cell ALL may have a pathogenesis similar to Burkitt's lymphoma. (31 Refs) (In JPN)

27. MEASLES ENCEPHALOPATHY DURING IMMUNOSUPPRESSION: FAILURE OF INTERFERON TREATMENT.

Olding-Stenkvist E, Forsgren M, Henley D, Kreuger A, Lundmark KM, Nilsson A, Wadell G
Infektionsklin., Akademiska Sjukhuset, S-750 14 Uppsala, Sweden
Scand J Infect Dis; 14(1):1-4 1982

A 5-yr-old boy and a 4-yr-old girl developed measles encephalopathy during the remission phase of acute lymphatic leukemia (ALL). Both children had been on maintenance therapy with 6-mercaptopurine, methotrexate, and cyclophosphamide. Interferon treatment was ineffective in both children. Postmortem biopsy revealed measles virus antigen in the brain tissue of both patients as well as intrathecal measles antibodies

in one. An effective vaccination program against measles is stressed, since the immunocompromised child under ALL therapy is particularly susceptible to the measles virus. (18 Refs)

28. EXPERIENCES OF 16 CHILDREN TREATED WITH BONE MARROW TRANSPLANTATION.

Hoshi Y, Johnson FL
Dept. Pediatrics, Jikei Univ. Sch. Medicine, Tokyo, Japan
Rinsho Ketsueki; 22(12):1909-1915 1981

Sixteen children (9 males, 7 females; 1-17 yr old; 5 with acute lymphocytic leukemia, ALL; 7 with acute non-lymphocytic leukemia, ANLL; 2 with non-Hodgkin's lymphoma; 1 with neuroblastoma; 1 with aplastic anemia, AA) were observed for more than 102 days after receiving allogeneic bone marrow transplantation. No graft rejection occurred, and 11 patients (69%) survived without complications for more than 4-10 mo after receiving grafts. Four patients (2 ALL, 1 ANLL, and 1 neuroblastoma) relapsed, and one patient each of ALL and neuroblastoma died of the respective disease. One case each of ALL and ANLL received chemotherapy and remission was still maintained. Ten patients (63%) had mild to severe graft-versus-host disease (GVHD), 7 patients (44%) needed therapy such as prednisolone, and 3 patients (19%) died of severe GVHD accompanied by infection. Four of six patients without GVHD relapsed, while none with GVHD relapsed. All patients required platelet transfusion, and two patients with severe GVHD accompanied by Staphylococcus infection were transfused with packed red blood cells. Twelve patients had fever and received antibiotics: significant bacteria were detected in six patients. Among the six infected, two died, and the other four improved with antibiotics. It appears that transplantation should be performed during remission rather than after relapse, and at a relatively earlier period rather than at a later, more advanced stage. (18 Refs) (In JPN)

29. STEROID HORMONE RECEPTOR OF ACUTE LEUKEMIC CELLS IN CHILDHOOD, WITH SPECIAL REFERENCE TO RECEPTOR LEVEL AND CHEMOTHERAPY.

Shimizu S, Asao T, Ido M, Kamiya H, Sakurai M
Dept. Pediatrics, Sch. Medicine, Mie Univ., Tsu, Mie Prefecture, Japan
Rinsho Ketsueki; 22(11):1714-1719 1981

Glucocorticoid (GC) receptor level in acute leukemic blast cells in childhood was measured in 40 cases of acute lymphoblastic leukemia (ALL) and 10 of acute myelogenous leukemia (AML). Although the level of GC receptor in leukemic cells of ALL was variable, its mean receptor level was clearly higher than that in AML or in the normal lymphocytes. The prognosis of leukemia apparently correlated with the GC level. The GC receptor level was lower in relapsed leukemic cells compared to that in pretreated leukemic cells. Drugs other than GC should be used to treat patients with a low level of GC receptors. (15 Refs) (In JPN)

30. THE OPHELIA SYNDROME: MEMORY LOSS IN HODGKIN'S DISEASE.

Carr I
Dept. Lab. Medicine, St. Boniface General Hosp., 409 Tache Ave., Winnipeg, Manitoba R2H 2A6, Canada
Lancet; 1(8276):844-845 1982

Memory loss of recent events was diagnosed as part of a paraneoplastic syndrome in a 16-yr-old girl with Hodgkin's disease. The patient presented with progressive loss of memory of recent events, depression, and hallucinations. Chest x-ray and mediastinoscopy revealed a large lung mass. Hodgkin's disease was diagnosed and treated with radiotherapy and chemotherapy. Memory was restored with the exception of an 18-mo gap. The concomitant appearance of memory loss and Hodgkin's disease is discussed. (1 Ref)

31. CHILDHOOD HISTIOCYTOSIS X: CLINICAL ASPECTS AND THERAPEUTIC APPROACHES.

Feldges AJ
FMH Padiatrie, spez. Haematologie, Leitender Arzt, Kinderspital, Claudiustrasse 6, 9006 St. Gallen, Switzerland
Haematol Blood Transfus; 27:225-229 1981

Childhood histiocytosis X (CHX) is a proliferative disorder of the Langerhans cell. CHX may be localized or disseminated, with an acute, subacute, or chronic course which can lead to death or residual damage. Eosinophilic granuloma (unifocal or multifocal), Hand Schuller Christian syndrome (chronic disseminated disease), and Letterer-Siwe syndrome (acute disseminated disease with systemic symptoms) are forms of CHX. Prognosis and treatment are determined by the extent to which lesions are found throughout the body. With more organ involvement, mortality rate increases. Organ dysfunction and age of less than 2 yr are associated with poor prognosis. Surgical curettage is used for localized bone lesions. The role of radiotherapy (600-800 rad) is unclear. Chemotherapy is the treatment of choice for disseminated CHX: alkylating agents, vinca alkaloids, and antimetabolites are effective, either alone or in combination. Immunotherapy with thymic extract may be of use, but further study is needed. (17 Refs)

32. ACHALASIA OF THE OESOPHAGUS ASSOCIATED WITH HODGKIN'S DISEASE IN CHILDREN.

Buyukpamukcu M, Buyukpamukcu N, Cevik N
Children's Medical Center, Hacettepe Univ., Ankara, Turkey
Clin Oncol; 8(1):73-76 1982

Esophageal achalasia has only been reported once in an adult patient as a complication of Hodgkin's disease. The two patients we report were the only ones with achalasia of the distal third part of the esophagus out of 164 children with Hodgkin's disease treated over the past 8 yr in Hacettepe Children's Medical Center. Both children had a achalasia corrected surgically and are well and symptom free 6 and 4 yr after operation. (Author abstract) (7 Refs)

33. PULMONARY CHANGES IN CHILDREN UNDERGOING THERAPY FOR HODGKIN'S DISEASE.

Aleksandrova OG
Second Children's Dept., Res. Inst. Pediatrics, Moscow, USSR
Pediatriia; (3):66-68 1982

Changes in the lung tissue were studied in 24 children undergoing therapy for Hodgkin's disease (HD). All patients had lung involvement. Six patients had primary localization of HD in the lung tissue, 17 had HD dissemination to the lungs, and 1 had lung atelectasis due to bronchus obstruction with enlarged bronchopulmonary lymph nodes. Of 24 children, 22 received polychemotherapy or/and radical distant gamma therapy. Complete regression of lung tumors was achieved in 75% of the patients with focal lung involvement. Therapy failed to induce complete tumor regression in the patients with infiltrative lung involvement. (3 Refs) (In RUS)

34. DIAGNOSIS OF PRIMARY MEDIASTINUM INVOLVEMENT IN CHILDREN WITH HODGKIN'S DISEASE.

Tsyplenkov VG, Vaganova NT, Abramova NI
Dept. Children's Radiology, Res. Roentgeno-Radiological Inst., Moscow, USSR
Pediatriia; (3):64-66 1982

Of 123 children with Hodgkin's disease (HD), 42 had primary involvement of the mediastinum. Duration of the clinical manifestations of the disease ranged from less than 2 mo in 4 children, to 2-6 mo in 15, 6-12 mo in 16, 12-24 mo in 5, and greater than 24 mo in 1. Of 42 patients, 18 had isolated involvement of the mediastinum and 24 had disseminated involvement. Clinical symptoms included cough, mild dyspnea during the exercise, mild enlargement of the supraclavicular lymph nodes, significant increase of blood sedimentation rate, and mild leukocytosis. X-ray examination showed unilateral enlargement of the mediastinum in 8 and bilateral enlargement in 34. Retrospective analysis of x-ray findings showed unilateral enlargement of the paratracheal lymph nodes in 30 children, enlargement of the bronchopulmonary lymph nodes in 10, and enlargement of the bifurcation lymph nodes in 2. (2 Refs) (In RUS)

OTHER SOLID TUMORS OF CHILDHOOD

35. CONGENITAL NASAL MASSES: DIAGNOSIS AND MANAGEMENT.

Bradley PJ, Singh SD
Dept. Otolaryngology, Royal Liverpool Hosp., Prescot St., Liverpool, England
Clin Otolaryngol; 7(2):87-97 1982

Congenital nasal masses (109) seen in two children's hospitals over a 20-yr period are reviewed. The masses were diagnosed as nasal dermoid (67), hemangioma (32), nasal glioma (5), encephalocele (2), calcifying epithelioma (1), fibroma (1), and neurofibroma (1). Because surgical excision is the treatment of choice for all congenital masses except hemangiomas, an accurate preoperative diagnosis is all important in avoiding surgical catastrophy. Nasal mass diagnosis is discussed with respect to age, lesion site, mode of presentation, and differential diagnosis. Radiological evaluation of the skull, including polytomography and computerized axial tomographic scanning if available, is mandatory for the investigation of nasal masses. Nasal hemangiomas, unless interfering with essential functions, should be managed conservatively. While an encephalocele should be approached by craniotomy, other nasal masses should be explored by an external approach, unless an intracranial connection is suspected or demonstrated. A vertical incision gives a good access for mid-line nasal lesions, while a lateral rhinotomy approach is recommended for a laterally placed or intranasal lesion. Surgical exploration should be carried out under a general anesthetic for all nasal masses, because the lesion may prove more extensive than anticipated. (43 Refs)

36. NASOPHARYNGEAL ANGIOFIBROMA: RADIATION VS SURGERY.

Fahey DJ, Buolos EJ, Dayem HA, Alker G
Otolaryngology Dept., State Univ. New York at Buffalo, Buffalo, NY
Ear Nose Throat J; 61(4):233-237 1982

Juvenile nasopharyngeal angiofibroma (JNA), despite its benign histology, can be a highly destructive bone disease which sends tumor processes throughout the nasal cavity. Diagnosis of JNA was made in a 14-yr-old boy by computed tomography of the head, nasopharyngoscopy and transnasal biopsy. Since the tumor was not readily resectable, radiation was the therapy of choice. The patient received 200 rads daily to a total of 4,000 rads in 20 increments over a period of 27 days. JNA is a slowly regressing tumor and a mass was still detected in the nasopharynx and sphenoid sinus until 20 mo post-therapy. The patient was free of disease 33 mo postirradiation with normal facial maturation and symmetry. When JNA is treated with radiation, treatment doses and ports must be planned individually to cover total tumor mass while protecting radiosensitive structures. Arguments against radiation therapy for JNA are presented; among the most dangerous long-term complication is carcinogenesis with two such cases reported in patients who received doses greater than 9,000 rads. (18 Refs)

37. THE TREATMENT OF SUBGLOTTIC HEMANGIOMAS OF INFANTS WITH PREDNISONE.

Sadan N, Sade J, Grunebaum M
Dept. Pediatrics, Meir General Hosp., Sapir Medical Center, Kfar-Saba, Israel
Int J Pediatr Otorhinolaryngol; 4(1):7-14 1982

Five infants (1 male, 4 female; 6 wk-13 mo old at initial treatment) with stridor and respiratory distress were examined by direct laryngoscopy and found to have subglottic hemangiomas. by direct laryngoscopy. All the infants presented with stridor and respiratory distress. Three patients had hemangiomas on other parts of the body: neck, face and mouth, or scalp and chest. Tracheostomy was performed in one child. The only other treatment was with prednisone (PRE; 3-5 mg/kg/day for 2-3 wk then gradually tapered thereafter for 8 wk). The patients were followed up for 1.5-10 yr. In all patients, stridor and dyspnea disappeared within the first wk of treatment. In two patients symptoms recurred shortly after completion of the first course of PRE, but subsided rapidly a few days after beginning the second course. In three patients, symptoms did not recur, even when the patients had episodes of upper respiratory infection. Enlargement of the subglottic region was observed in two patients on control roentgenograms of the neck after treatment as compared with pretreatment films. The only side effect was moon-facing, which subsided following completion of therapy. PRE, when begun early, may reduce the need for tracheostomy and may permit complete recovery with proper dosage and length of treatment. (28 Refs)

OTHER RELATED CLINICAL STUDIES

38. CONTRIBUTION OF ULTRASONOGRAPHY TO THE STUDY OF RETROPERITONEAL TUMORS IN CHILDREN.

Cadier I., Broussin B, Calabet A, Baudain P, Diard F
(c/o Diard) Service de Radiologie, Hopital des Enfants, 168, cours de l'Argonne, F 33000 Bordeaux, France
J Radiol; 63(1):15-23 1982

Ultrasonography investigations of retroperitoneal tumors in children were conducted in 25 cases: 11 nephroblastomas, 11 neuroblastomas, 2 ganglioneuromas, and 1 rhabdomyosarcoma. Ultrasonographic exploration of such tumors should include analysis of the mass: echostructure, limits, interfaces and dimensions, and analysis of its extension. The latter should deter-

mine the position in relation to the median line, the condition of the large vessels (inferior vena cava and aorta), the homolateral renal cavities and the contralateral kidney, and the presence or absence of glandular spread and hepatic metastases. The semiology of each of these elements is describes and discussed, to determine their individual diagnostic value. (Author abstract) (15 Refs) (In FRE)

39. NECK MASSES IN CHILDREN: ADENOPATHY AND MALIGNANT DISEASE.

Zitelli BJ
Children's Hosp. Pittsburgh, 125 DeSoto St., Pittsburgh, PA, 15213
Pediatr Clin North Am; 28(4):813-821 1981

The differential diagnosis of neck masses in children is reviewed including congenital lesions, lymphadenopathy and malignant masses. Surface anatomy of the neck is reviewed. A detailed physical examination of possible adenopathy should include location, shape, size, consistency, symmetry, mobility, signs of inflammation, suppuration and overlying skin discoloration. Possible viral and non viral causes of adenopathy are discussed. Of seven children with neck masses, one will have a malignant mass; age is a factor in the type of tumor found. The primary tumors found include neuroblastoma, lymphosarcoma, rhabdomyosarcoma and Hodgkin's disease. (39 Refs)

40. ADVANCES IN THE PHARMACOLOGY OF CANCER CHEMOTHERAPY.

Smith SD
Univ. Kansas Medical Center, Coll. Health Sciences and Hosp., Dept. Pediatrics, 39th and Rainbow, Kansas City, KS
Pediatr Clin North Am; 28(1):145-160 1981

Chemotherapeutic advances in the treatment of individual malignant diseases in children are reviewed. Initial therapy is crucial; the initial chance for recovery may be as high as 80-90%, but this rate falls to less than 1% if relapse occurs. Specific drug regimens for induction and maintenance therapy are detailed for common childhood cancers, including acute lymphoblastic leukemia, acute myelogenous leukemia, Hodgkin's disease, non-Hodgkin's lymphoma, Wilm's tumor, rhabdomyosarcoma, neuroblastoma, Ewing's sarcoma, and osteogenic sarcoma. Concomitant clinical problems which may develop in a child with cancer include fever (due to bacterial infection), varicella infection, and pneumonia (due to Pneumocystis carinii). Nausea and vomiting, subcutaneous chemical burns due to extravasation, hair loss, oral lesions, and pain are common side effects of chemotherapy; therapy to combat side effects is discussed. (58 Refs)

41. INTUSSUSCEPTION. 188 PATIENTS TREATED DURING 22 YEARS.

Ducharme JC, Perreault G, Cyr R, Medoux L
Departement de Chirurgie pediatrique, Universite de Montreal, Hopital Sainte-Justine, 3175, chemin Sainte-Catherine, Montreal, Quebec H3T 1C5, France
Chir Pediatr; 23(1):23-27 1982

Four separate studies of intussusception (ITS) in 188 children are compared. The diagnosis of ITS using radiography and barium enema is discussed. Barium enema reduction of ITS is described. Organic causes of ITS include one case each of polyps, hemangioma, leiomyosarcoma, and lymphoma. In the latest series of 82 patients, 4 recurrences were reported. Deaths occurred in two surgically treated ITS patients. The incidence, etiology, diagnosis, and treatment of ITS are discussed. (8 Refs) (In FRE)

42. INTRAVENOUS HYPERALIMENTATION IN THE MANAGEMENT OF CHILDREN WITH CANCER.

Ha KS, Tawa A, Ikeda T, Shu K, Okada A, Kim M, Yabunchi H
Dept. Pediatrics, Osaka Univ. Sch. Medicine, Osaka, Japan
Rinsho Ketsueki; 22(12):1923-1929 1981

Use of iv hyperalimentation (IVH) with anticancer therapy in 34 children (2 mo to 14 yr old) with leukemias and various solid tumors is reported. Body wt increased during IVH application, but decreased when IVH was not in use. In 26 cases of expanding neuroblastoma, 50% survival period was only 4 mo for the 16 patients treated conventionally,, compared with 14 mo for the 10 who received IVH. Frequency of the occurrence of other diseases, such as catheter-related septicemia, was 8% overall despite increased use and long-term use of IVH each yr. (26 Refs) (In JPN)

43. APPROACHING A CHILD'S CANCER TREATMENT.

Peterson RD, D'Angio GJ, Grosfeld JL, Mauer AM, Miller DR, Sinks LF, Napolitano LV
(c/o The Editor) Patient Care, 16 Thorndal Circle, Darien, CT, 06820
Patient Care; 16(7):115-118,122,127,130,132,133,138,139,142-144,147 1982

A child with a diagnosis of cancer should be referred to a major oncology center for further diagnosis and treatment. Many current diagnostic and treatment protocols for children with specific cancers were derived from cooperative study group findings. Without the cooperative system it would be nearly impossible to make fine distinctions between two therapy approaches. About 60% of children with cancer in the United States are placed on some kind of clinical research protocol. The evolution of the team approach to treating children with cancer is discussed. (6 Refs)

44. THE CHILD CURED OF CANCER: A PROBLEM FOR THE INTERNIST.

D'Angio GJ
Childrens Cancer Res. Center, Childrens Hosp., 34th St. and Civic Center Blvd., Philadelphia, PA, 19104
Semin Oncol; 9(1):143-149 1982

Problems of long-term effects of chemotherapy are becoming evident as more children have their lives extended by treatment. Disorders of growth and development, including both direct and indirect effects of irradiation and chemotherapy, are discussed. The heart, liver, lung, urinary bladder, and major blood vessels are also vulnerable to complications of treatment. Both irradiation and chemotherapy have produced documented effects on the brain and gonads in children. In addition to dysfunctional effects, both benign and malignant tumors are recognized as sequelae of childhood irradiation and combined radio- and chemotherapy. Now that therapy is successful in many cases, attention must be given to the late adversities of successful childhood cancer therapy. To obtain adequate follow-up, those treating children should transmit records of earlier therapy to those who take over responsibility when the patients enter adulthood. Examination for local or distant tumor recurrence should be thorough. (46 Refs)

45. CANCERS OF CHILDHOOD.

Simone JV, Cassaday JR, Filler RM
St. Jude's Children's Res. Hosp., Memphis, TN
Cancer - Principles and Practice of Oncology. DeVita VT, Hellman S, and Rosenberg SA, ed. Philadelphia, Lippincott, 1926 pp., 1982.

Childhood cancers are reviewed with respect to etiology, clinical features, diagnosis, prognostic factors, and treatment. Chemotherapy, surgery, and radiotherapy of pediatric tumors are discussed. Childhood leukemias, non-Hodgkin's lymphoma (T-cell lymphoblastic lymphoma of the mediastinum, Burkitt lymphoma, non-Hodgkin's lymphoma of the bone), neuroblastoma, Wilms' tumor, rhabdomyosarcoma, Ewing's sarcoma, hepatic tumors, retinoblastoma, germ cell tumors (sacrococcygeal teratoma, germ cell tumors of the testis), and histiocytosis X are discussed. In general, childhood cancers are more responsive to current therapeutic methods than tumors in adults. Remarkable therapeutic success has been achieved in Wilms' tumors, acute lymphocytic leukemia, retinoblastoma, and lymphoma. Studies of childhood leukemias have been useful for testing hypotheses of cancer therapy generated in animal systems. Once an effective therapy has been discovered for an almost universally fatal malignancy, then modifications can be studied to minimize the physical and psychosocial late effects. Because it appears closer to the etiological event in time, childhood cancer has provided an opportunity to study associations and potential etiological factors. Complex schema of etiology have been proposed, sometimes involving two or more events for cancer to develop. (503 Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

46. EPIDEMIOLOGICAL FEATURES OF WILMS' TUMOR: RESULTS OF THE NATIONAL WILMS' TUMOR STUDY.

Breslow NE, Beckwith JB
Dept. Biostatistics SC-32, Univ. Washington, Seattle, WA, 98195
JNCI; 68(3):429-436 1982

Nearly 2,000 children with Wilms' tumor registered in a national clinical trial during 1969-81 showed high rates of aniridia, hemihypertrophy, cryptorchidism, hypospadias, and other genitourinary anomalies. Patients with bilateral disease, who constituted 5% of the total, had younger ages at diagnosis and an increased incidence of congenital anomalies and renal blastemal rests. Those with multicentric unilateral lesions had more blastemal rests but were otherwise indistinguishable from the unicentric cases. The 20 familial cases had none of the features usually associated with genetic tumors: neither younger ages nor an increase in bilaterality nor associated congenital anomalies. These observations suggest that the fraction of Wilms' tumors that is due to an inherited mutation may be substantially smaller than previously supposed and support the concept that the disease arises from a variety of pathogenetic pathways. (Author abstract) (38 Refs)

47. WILMS' TUMOR WITH ANIRIDIA/IRIS DYSPLASIA AND APPARENTLY NORMAL CHROMOSOMES.

Riccardi VM, Hittner HM, Strong LC, Fernbach DJ, Lebo R, Ferrell RE
Res. Cytogenetics Lab., Baylor Coll. Medicine, 1200 Moursund Ave., Houston, TX, 77030
J Pediatr; 100(4):574-577 1982

Two patients with Wilms' tumor, iris dysplasia (complete aniridia in one and subtle iris defects in the other), normal karyotypes, and no gene loss demonstrable by enzyme marker and direct DNA analyses are presented. The findings indicate that aniridia and less severe iris defects define a risk for Wilms' tumor even in the absence of del (11p13), and that there is as yet no consistent biochemical genetic marker for the aniridia-Wilms tumor association. (Author abstract) (17 Refs)

48. CHILDREN'S BRAIN TUMOUR CELLS PRODUCE RNA PARTICLES WITH INCOMPLETE RETROVIRUS CHARACTERISTICS.

Thorne HJ, Jose DG, Adams FC, Coelen RJ, Whitehead RH, Klugg G
Clinical Immunology and Immunogenetics Unit, Cancer Inst., Melbourne, Victoria, Australia
Oncology; 39(3):156-162 1982

Short-term cultures of cells from human brain tumors have been reported to synthesize RNA particles of density in the range characteristic of C type RNA retroviruses, with associated DNA polymerase activity. Fresh tumor cells obtained from six children with astrocytoma and seven children with medulloblastoma, together with one sample of normal brain tissue and normal leukocytes from brain tumor patients were assayed by several characteristics for the presence of primate retrovirus. One of six (17%) astrocytomas and four of seven (57%) medulloblastomas released RNA particles which banded in sucrose gradients at a density of 1.16-1.18 g/cm3 together with a short segment of DNA, which was eliminated by prior ribonuclease treatment and two proteins of 28k and 16k daltons. These findings were compatible with the presence of a primate retrovirus. Immune coprecipitation of 125I-labeled proteins from the 1.16-1.18 g/cm3 gradient region failed to show any reactivity with antisera to p28 core antigens or the p70 reverse transcriptase antigens of simian sarcoma virus, baboon endogenous virus or Mason Pfizer virus. Assays for DNA polymerase activity in culture supernatant fluid showed only a low amount of activity with template preference not characteristic of the retroviral reverse transcriptase enzyme. (Author abstract) (21 Refs)

49. BILATERAL RETINOBLASTOMA WITH ECTOPIC INTRACRANIAL RETINOBLASTOMA: TRILATERAL RETINOBLASTOMA.

Bader JL, Meadows AT, Zimmerman LE, Rorke LB, Voute PA, Champion LA, Miller RW
Radiation Oncology Branch, NCI, Building 10, Room B3B38, Bethesda, MD, 20205
Cancer Genet Cytogenet; 5(3):203-213 1982

In 11 patients, bilateral retinoblastoma presented at a mean age of 6 mo and pineoblastoma at 4 yr. We suggest that the hereditary multicentric retinoblastoma arose in vestigeal photoreceptors in the pineal as well as in the hypothetical retinoblasts of the retina. In certain lower animals, the pineal functions as a photoreceptor organ, resembles the retina histologically, and is described as a 'third eye'. Hence, the patients we describe may be considered as having 'trilateral retinoblastoma.' Two possible variants of this entity were also noted: (1) three children without retinoblastoma who developed pineoblastoma with rosettes and photoreceptor differentiation characteristic of retinoblastoma, and (2) three additional cases involving children who presented with retinoblastoma-like tumors in the suprasellar or parasellar region 2 to 6 mo before the discovery of intraocular retinoblastoma. These observations suggest that the retinoblastoma gene confers a previously unappreciated susceptibility to a narrow spectrum of neuroblastic tumors, which

usually present in the retina but which can also occur ectopically. (Author abstract) (25 Refs)

50. ACUTE LEUKEMIA IN A PATIENT WITH DOWN'S SYNDROME AND TRANSIENT CONGENITAL LEUKEMIA.

Chu JY, Weldon BC
Cardinal Glen Memorial Hosp. for Children, 1465 South Grand Blvd., St. Louis, MO, 63104
Am J Dis Child; 136(4):367 1982

Acute non-T, non-B cell leukemia was discovered in a 15.5-mo-old boy with Down's syndrome 1 yr after spontaneous remission of transient congenital leukemia. The patient presented with facial edema, generalized urticaria, and hepatomegaly. A brief remission was achieved following chemotherapy. Further therapy was refused after relapse and the patient died at 25 mo of age. The relationship between Down's syndrome and transient and acute leukemias is discussed. (7 Refs)

51. FINAL CASE REPORTING FROM THE UGANDAN PROSPECTIVE STUDY OF THE RELATIONSHIP BETWEEN EBV AND BURKITT'S LYMPHOMA.

Geser A, DeThe G, Lenoir G, Day NE, Williams EH
International Agency Res. Cancer, 150 Cours Albert Thomas, 69372 Lyon, France
Int J Cancer; 29(4):397-400 1982

A prospective epidemiological study was carried out in the West Nile District of Uganda from 1972 to 1979 in order to investigate the etiological role of the Epstein-Barr virus (EBV) in Burkitt's lymphoma (BL). By 1976, 14 BL cases had been detected among the 42,000 children originally bled in the study area. Testing of sera from BL candidates and neighborhood controls showed that children who develop BL later have EBV/VCA titers several dilutions higher than their age- and sex-matched neighbors. This appearance of a strong EBV activity long before BL development was taken as evidence of a causal role of EBV in BL in order to add to the unique material of pre-bled BL cases, BL detection was continued up to March 1979 when field work became impossible in Uganda. Two additional pre-bled BL cases were found during this extension of the study. The serological and virological evaluation of these additional cases showed that the EBV/VCA titers, but not the EA and EBNA titers, were about two dilutions higher in the BL candidates than in the controls. Hybridization assays showed that both lymphomas contained EBV/DNA in the tumor cells. These additional results thus confirm the findings in the first 14 cases and strengthen the epidemiological evidence for a causal role of the EBV in endemic BL. (Author abstract) (10 Refs)

52. FAMILIAL LYMPHOHISTIOCYTOSIS.

Janka GE, Belohradsky BH, Daumling S, Muller-Hocker J, Meister P, Haas RJ
Universitats-Kinderklinik, Lindwurmstrasse 4, 8000 Munchen 2, W. Germany
Haematol Blood Transfus; 27:245-253 1981

Four cases of familial lymphohistiocytosis (FLH) and 79 cases from the literature are reviewed. A 2-mo-old infant with spiking temperatures and hepatosplenomegaly had histiocytes in the cerebrospinal fluid. The fever subsided and platelet level returned to normal after treatment with packed RBC; neutropenia persisted. Three wk later, FLH was suspected when symptoms returned. The patients older brother had died at the age of 10 mo with identical clinical symptoms. Therapy with vinblastine and prednisolone (V+P) and frequent transfusions was ineffective. Leukopenia became profound with virtually no granulocytes; liver enzymes rose and icterus developed. The patient died of pseudomonas sepsis at the age of 7 mo. A third child in this family has proven XO Turner syndrome, and a fourth child (2 mo old) has symptoms characteristic of FLH. Characteristic features of FLH are familial occurrence, manifestations early in life, the triad of fever, hepatosplenomegaly and pancytopenia, usually a rapidly fatal course, and lymphohistiocytic infiltration of all organs with erythrophagocytosis. A definite classification of the syndromes seen with FLH is not possible at present. Whether FLH is a neoplastic process or not is unclear. Genetic counseling is important because FLH appears to be an autosomal recessive disease. (48 Refs)

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AUTHOR INDEX WITH CITATION NUMBERS

Abramova NI 34
Adams FC 48
Aleksandrova OG 33
Alker G 36
Asao T 29
August CS 20
Bader JL 49
Baker M 13
Barbet JP 10
Barmach de Niep 7
Bascones A 12
Baudain P 38
Beckwith JB 46
Belohradsky BH 52
Beppu T 19
Berchtold W 15
Bergada C 7
Bernasconi S 15
Bernstein ID 9
Bilaniuk LT 16
Bisogni MC 22
Bleyer WA 9
Bonamo JF 8
Bradley PJ 35
Breen JL 8
Breslow NE 46
Broussin B 38
Bruce DA 14
Bryan CK 20
Buolos EJ 36
Buriot D 25
Buyukpamukcu M 32
Buyukpamukcu N 32
Cadier L 38
Calabet A 38
Carr I 30
Cassaday JR 45
Cevik N 32
Champion LA 49
Chard RL 9
Chemes HE 7
Chu JY 50
Claus D 5
Coelen RJ 48
Cohen MD 13
Comelli A 22
Cornu G 5
Cyr R 41
D'Angio GJ 43
D'Angio GJ 44
Daou RA 3
Daumling S 52
Day NE 51
Dayem HA 36
DeBernardi B 22
DeThe G 51
Denni J 10
Diard F 38
Dini G 22
Ducharme JC 41
Eavey R 1
Fahey DJ 36
Farrant PJ 4
Feigl P 9
Feldges A 15
Feldges AJ 31
Fernbach DJ 47
Ferrell RE 47
Filler RM 45
Forsgren M 27
Geser A 51
Gore RM 23
Gosseye S 5
Greenlee TK 9
Griscelli C 25
Grosfeld JL 13
Grosfeld JL 43
Grunebaum M 37
Ha KS 42
Haas JE 9
Haas RJ 24
Haas RJ 52
Hartmann JR 9
Healy G 1
Helmig MS 24
Henley D 27
Himuro H 19
Hittner HM 47
Hoshi Y 28
Ido M 29
Ikeda T 42
Imbach P 15
Itoh M 17
Jaffe N 6
Janka GE 52
Johnson FL 28
Johnson FL 9
Jose DG 48
Kamiya H 29
Kamoshita S 2
Kim M 42
Klugg G 48
Koch PA 20
Komp DM 11
Kreuger A 27
Kuchler H 25
Kusakari A 26
Lebo R 47
Lenoir G 51
Lucky AW 11
Lundmark KM 27
Luthi A 15
Mace B 10
Maier M 25
Massimo L 22
Masuzawa T 2
Mauer AM 43
Maxson WS 8
McGuire J 11
Meadows AT 49
Medoux L 41
Meister P 24
Meister P 52
Miguel-Miguel G 12
Miller DR 43
Miller RW 49
Morgan A 9
Mori PG 22
Mori T 17
Muller-Hocker J 52
Nakazawa S 26
Napolitano LV 43
Nilsson A 27
Ninane J 5
Nojiri K 17
Ohya M 17
Okada A 42
Okino T 19
Olding-Stenkvis 27
Otte JB 5
Pascual-Castrov 12
Pasino M 22
Pendergrass TW 9
Perreault G 41
Peterson RD 43
Plotkin SA 20
Pluss HJ 15
Pruszczynski M 18
Riccardi VM 47
Rivarola MA 7
Rorke LB 49
Sadan N 37
Sade J 37
Sakurai M 29
Sato F 2
Sato O 17
Sauter K 18
Schaller RT 9
Schloss MD 3
Seiler RW 15
Serota FT 20
Shimabukuro H 2
Shimizu S 29
Shkolnik A 23
Shu K 42
Siddiqui A 13
Simone JV 45
Singh SD 35
Sinks LF 43
Smith SD 40
Sporny S 18
Starr SE 20
Strong LC 47
Sugiura M 19
Swartz JD 16
Takane K 26
Tan Vinh L 10
Tanikawa T 19
Tawa A 42
Thorne HJ 48
Tonini GP 22
Tsugane R 17
Tsyplenkov VG 21
Tsyplenkov VG 34
Vadala R 22
Vaganova NT 34
Vassella F 15
Villarejo F 12

Voute PA..... 49
Wadell G..... 27
Wagner HP..... 15
Weber AL..... 1
Weldon BC..... 50
Whitehead RH..... 48
Williams EH..... 51
Wyss M..... 15
Yabuuchi H..... 42
Yamada K..... 26
Zimmerman LE..... 49
Zimmerman RA..... 16
Zitelli BJ..... 39

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-8
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 9-20
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 21
- NEUROBLASTOMAS AND CNS TUMORS..... 22-33
- LYMPHOMAS AND LEUKEMIAS..... 34-72
- OTHER SOLID TUMORS OF CHILDHOOD..... 73-75
- OTHER RELATED CLINICAL STUDIES..... 76-95
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 96

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. HISTOPATHOLOGY AND PROGNOSIS IN RHABDOMYOSARCOMA (IRSI) (MEETING ABSTRACT)

Palmer N, Sachs N, Foulkes M
Children's Hospital, Columbus, OH, 43205
Proc Am Soc Clin Oncol; 1:C-660 1982

A new pathologic classification of pediatric rhabdomyosarcoma, of prognostic significance for progressive disease (PD) and death from continued tumor growth (TD) has been derived from a retrospective clinicopathologic study of patients treated in the first InterGroup Rhabdomyosarcoma Study (IRSI). Eighty-eight of 404 patients with rhabdomyosarcoma were either Anaplastic (AR) (60) or Monomorphous Round Cell (MRC) (28) subtypes. Both AR and MRC (combined: Unfavorable Histology, UH) are associated with significantly reduced relapse-free survival and an increased mortality (TD) compared to the remaining 316 (Mixed subtype: Favorable Histology, FH) In Groups I-IV 10 of 25 MRC and 19 of 47 AR were disease-free (DF) at 2 years; 12 MRC and 21 AR had died (TD) compared to 162 of 256 DF and 68 TD in the

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Mixed (FH). The FH/UH classification was tested, together with multiple pathologic and clinical parameters, in logistic regression models for its predictive value for survival (non-TD) in Groups I-III. Clinical Group (IRS) was the strongest factor (Group I/III ratio of risk factor (for TD) of 3.76) followed by FH/UH. Within each Clinical Group, presence of UH increased the likelihood of TD by a factor of 2.69. The FH/UH system is based on cytologic findings only in contrast to the admixed cytologic (eg: embryonal) and tissue organization (eg: alveolar) features inherent in the conventional classification. (no Refs)

2. CNS PROPHYLAXIS (RT + IT MTX) IN THE COMBINED TREATMENT OF CHILDHOOD EMBRYONAL RHABDOMYOSARCOMA (ERMSA) PRESENTING WITH MENINGEAL EXTENSION (MEETING ABSTRACT)

Lombardi F, Gasparini M, Bajetta E, Gianni C
Istituto Nazionale Tumori, Milan 20133, Italy
Proc Am Soc Clin Oncol; 1:C-683 1982

From 1978 to 1980, 11 consecutive children presenting with head and neck ERMSA with meningeal extension were treated according to a prospective treatment protocol. The age ranged from 1.4 to 15 years (median 4.6). ERMSA arose in the nasopharynx (4), middle ear (3), paranasal sinus (3), pterygopalatine fossa (1). Clinical signs of meningeal extension were as follows: erosion of base of skull (10), cranial nerve palsy (7), intracranial hypertension (3). In no case malignant cells in the cerebrospinal fluid were detected. Metastases were present in cervical nodes in 3 and in lungs in 3. Treatment started with chemotherapy (ADM (adriamycin) 25 mg/m2 + VCR (vincristine) 1.4 mg/m2 + CTX (cyclophosphamide) 600 mg/m2 on day 1 and 15, DTIC (dacarbazin) 250 mg/m2 on day 1-2-3, rest period from day 16 to 30). RT (radiotherapy) was given after 1-2 mo from the beginning of chemotherapy. Fields included skull in continuity with the primary tumor site. Thirty Gy to the entire skull were delivered in 3-4 wk with boost (up to 55-60 Gy) to the primary tumor. It MTX (methotrexate) (10 mg/m(2)) was administered q 2 wk until the end of RT and then every 2 mo. Chemotherapy was continued for 2 years (maximal dose of ADM 500 mg/m(2)). CR (complete response) was achieved in 10/11 and 7 (64%) are surviving continously relapse-free after a median follow-up of 32+ mo (range 16+ to 44+ mo). Reasons for relapse in 3 CRs consisted of occurrence of lung metastases (1), local recurrence (1), and meningeal dissemination (1). (no Refs)

3. THREE-YEAR RELAPSE-FREE SURVIVAL RATES IN CHILDHOOD RHABDOMYOSARCOMA OF THE HEAD AND NECK. REPORT FROM THE INTERGROUP RHABDOMYOSARCOMA STUDY.

Sutow WW, Lindberg RD, Gehan EA, Ragab AH, Raney RB, Ruymann F, Soule EH
Dept. Pediatrics, Univ. Texas System Cancer Center, M. D. Anderson Hosp. and Tumor Inst., Texas Medical Center, Houston, TX, 77030
Cancer; 49(11):2217-2221 1982

In 202 patients with rhabdomyosarcoma of the head and neck who registered in the first Intergroup Rhabdomyosarcoma Study, the primary lesions arose about the eye and orbit in 26%, in parameningeal sites in 46%, and in other head and neck areas in 28%. Histopathologically, 78% were embryonal-botryoid, 9% alveolar, 10% undifferentiated, and 3% extraosseous Ewing's types. Actual 3-yr relapse-free survival rates were calculated from data on 103 of these patients who were free of distant metastases at diagnosis and in whom follow-up had been completed for a 3-yr period. The actual relapse-free survival rates were 91% (21/23) for those with eye/orbit primaries, 46% (20/44) for those with parameningeal primaries, and 75% (27/36) for those with other head and neck sites affected. Among those with no clinical evidence of tumor activity at 2 yr, 8% (6/75) had subsequent relapses. (Author abstract) (24 Refs)

4. EXTRAOSSEOUS EWING'S TUMOR: DEFINITION AND CLINICO-PATHOLOGIC EVALUATION (MEETING ABSTRACT)

Newton WA, Soule EH, Maurer H, Heyn R
Columbus Children's Hospital, Columbus, OH, 43205
Proc Am Soc Clin Oncol; 1:C-666 1982

Soft tissue sarcomas account for about one-tenth of all cancers seen in children. In the past, prognosis for a child with one of this group of lesions was poor. This outlook has improved markedly, but because of the multiplicity of clinical and morphologic variables, it is not possible to be precise to estimate the progress for a given patient. It is now clear that some of these lesions do not show evidences of skeletal muscle derivation, but consist of primitive cells that resemble those described with bone by Ewing years ago. A new variant was pathologically identified and separated from the larger group of tumors of children placed on the IRS study by the authors, designated Extraosseous Ewing's Tumor (EOE). The preliminary data has been previously described. This review can now evaluate the range of variability as to age at diagnosis, site of primary tumor, sex, stage of the disease and compare the response to therapy of these lesions with other variants of this group of tumors, with statistical evaluation of the significance of each. Fifty-five tumors were classified as EOE. Compared to the other subtypes, it is characterized as 1) more likely to be localized, 2) no sex predelection, 3) to occur more frequently in the trunk or extremities, 4) more likely to be seen in patients older than 5 years. Two and three year survival rates are not significantly different than Embryonal subtype of rhabdomyosarcoma, in Stages I-III, better than Alveolar subtype in Stage I and II. It is clear that this type of tumor, morphologically similar to Ewing's Tumor, behaves clinically like soft tissue sarcomas. (1 Ref)

5. CHEMOTHERAPY OF LOCALLY AGGRESSIVE HEAD AND NECK TUMORS IN THE PEDIATRIC AGE GROUP (MEETING ABSTRACT)

Goepfert H, Cangir A
University of Texas System Cancer Center, M.D. Anderson Hospital and, Tumor Institute Houston, TX
Joint Meeting of the Society of Surgical Oncology and Society of Head and Neck Surgeons, April 18-23, 1982, Marco Island, Florida. The Society of Surgical Oncology and the Society of Head and Neck Surgeons 265 pp., 1982.

Aggressive fibromatosis (Fibrosarcoma Grade I, desmoid type) and Juvenile Nasopharyngeal Angiofibroma in children may be invasive, infiltrative into vital structures. The patient's life may become endangered or vital functions may become disrupted by the growing tumors. This report concerns five patients with aggressive fibromatosis of the head and neck and two patients with recurrent, unresectable juvenile nasopharyngeal angiofibroma that have been treated with systemic chemotherapy. Treatment consisted of monthly courses of Adriamycin (ADR) and Dimethyltriazeno-imidazole-carboxamide (DTIC). In those patients in whom myocardial tolerance for Adriamycin had been reached, continuation of treatment was done with Actinomycin D, Vincristine and Cytoxan. All pa-

tients were treated with between 6 and 10 monthly courses. Objective remission was achieved in all patients with complete disappearance of all disease in two patients. In the patients with aggressive fibromatosis frank objective tumor reduction was obtained after 3 to 6 courses of chemotherapy. The residual lesions were then resected by conservation procedures in three patients. Post-operative chemotherapy was administered for an additional 4 to 6 months. All patients have remained free of recurrence for up to 5 years. One patient with juvenile nasopharyngeal angiofibroma had total disappearance of all tumor as proven by angiography and biopsy after 6 months of chemotherapy. He has remained free of disease for 6 years. The main toxicity had been myelosuppression and no untoward sequelae of treatment have occurred. This treatment is recommended as an alternative to radiation therapy and considered valuable adjuvant to surgical resection of selected lesions. (no Refs)

6. GIANT CELL FIBROBLASTOMA: A PECULIAR CHILDHOOD TUMOR (MEETING ABSTRACT)

Shmookler BM, Enzinger FM
Armed Forces Institute of Pathology, Washington, DC
71st Annual Meeting of the International Academy of Pathology (United States-Canadian Division), March 1-5, 1982, Boston, Massachusetts. International Academy of Pathology 95 pp., 1982.

This is a study of 20 examples of a previously unreported soft tissue tumor which, except for three cases, occurred in young children. The group comprised 15 males (75 per cent) and five females (25 per cent). Ages ranged from 4 months to 31 years (median, 6.5 years); 85 per cent were younger than 10 years. The painless, occasionally slowly enlarging, neoplasm showed a slight predilection for the back (20 per cent) and thigh (20 per cent). Other, less common, sites included the anterior chest, inguinal region, and clavicular area. The relatively small and diffusely infiltrative lesions invariably affected the superficial soft tissues. Microscopically, the tumor was composed of parallel fascicles of slender, wavy uniform spindle cells associated with wirey collagen fibers and densely sclerosed areas with scattered pleomorphic and bizarre spindle and multinucleated giant cells. Atypical spindle-shaped and multinucleated giant cells also lined gaping and often branching sinusoidal structures, a distinctive feature of this tumor. Ultrastructurally, many of these cells contained a string of segmented nuclei and small amounts of dilated rough endoplasmic reticulum. There were also numerous primitive mesenchymal cells resembling fibroblasts. The disturbing cellular atypia explains the large number of cases that were submitted with a malignant diagnosis, yet follow-up for 13 cases disclosed that there were seven local recurrences but that all patients are currently alive with no evidence of disease. (no Refs)

7. JUVENILE LIPOSARCOMA: AN ANALYSIS OF 15 CASES (MEETING ABSTRACT)

Shmookler BM, Enzinger FM
Soft Tissue Pathology Branch, Armed Forces Institute of Pathology, Washington, DC, 20306
Am J Clin Pathol; 77(2):245 1982

Liposarcoma, one of the more common soft tissue sarcomas affecting adults, is exceedingly rare in children. Therefore, we analyzed 15 cases of liposarcoma occurring in patients between 8 months and 15 years of age (mean 11.8 yr), a group comprised of 10 females (67%) and five males (33%). As with the adult form, the thigh proved to be the most frequently involved sites (five cases), followed by two each in the axilla and knee region and only one in the retroperitoneum. Typically, the tumors were lobulated, often partially encapsulated and focally myxoid and ranged from 3.5 to 14.0 cm in greatest dimension. Twelve lesions fulfilled the generally acceptable histologic criteria for myxoid liposarcoma, whereas two were classified as well-differentiated and one as round cell liposarcoma. We obtained follow-up information (ranging from 1.2 to 17.2 years) for all the patients. Three neoplasms recurred locally, one of which, a myxoid liposarcoma in the axilla of an 11-year-old boy, terminated fatally as a result of local extension into the pleural cavity. Benign lipoblastomatosis, considered in the differential diagnosis of all the cases, usually reveals a more prominent lobulation and, unlike most myxoid liposarcomas, often displays a striking interlobular variation in the maturity of the adipose tissue cells. (no Refs)

8. MALIGNANT MELANOMAS IN CHILDREN. A REVIEW OF 12 CASES.

Mole B, Banzet P, Cesarini J
Service de Chirurgie Plastique et Reconstructive, Hopital Saint-Louis, 2, place du Docteur-Fournier, 75475 Paris, France
Ann Chir Plast; 27(1):87-90 1982

In a series of 12 cases of malignant melanomas in children (9 girls and 3 boys from 2-15 yr old), 50% of the lesions were located on the lower limbs. Causes included the transformation of a congenital nevus (7) and of a preexisting lentigo (1). In three cases, the melanoma appeared on healthy skin. The delay between the appearance of the lesion and diagnosis varied from 3-18 mo. Metastatic lymph nodes were present in 1/3 of the patients. Treatment included simple surgical excision (5), excision with a graft (6), chemotherapy followed by curettage (3), simple curettage (1), and long-term chemotherapy (4). One child (13-yr-old) with a traumatized underarm nodular melanoma died of a cerebral metastasis 10 mo after the beginning of treatment. The remaining 11 children were alive at follow-up varying from a few mo to 8 yr (av 30 mo). Fundamental histological arguments in favor of a diagnosis of malignant melanoma include the presence of atypical melanocytes mitoses, and the possibility of vascular and cutaneous, invasion by the tumor. (3 Refs) (In FRE)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

9. IVP, US AND CT IN THE EVALUATION OF WILMS TUMOR (MEETING ABSTRACT)

Perale R, Del Maschio M, Pescarini L, Di Terlizzi A, Cocito MG, Candiani F
Departments of Radiology and Pediatrics, University of Padua, Padua, Italy
Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

Since January 1980, 78 children have been evaluated in our institution for an abdominal mass by means of IVP (IV pyelogram) and gray-scale ultrasonography (US); 28 also underwent abdominal CT (computed tomography). The final diagnosis was Wilms Tumor (WT) in 23 cases of which 5 were bilateral and 2 were recurrences of a previously operated primary WT. The main ultrasonic features (27 masses evaluated for this purpose) were: large size (diameter range, 35-150 mm); sharp distinction from contiguous extrarenal structures (24 masses) with occasional presence of a hypoecholic halo (7), and an average echogenicity lower (12), similar (8) or higher than liver (7). In

14 cases, relatively sonolucent areas were observed and correlated well with the presence of intratumoral necrosis. US proved better than IVP in giving the exact dimensions of the tumor masses; it consented the identification of liver metastases and caval obstruction in 2 different cases and was diagnostic in the 2 cases of non-functioning kidneys on IVP. IVP was more informative regarding the demarcation of the non-affected renal parenchyma in 6 cases, which is important in bilateral WT. CT was performed in 10 cases of WT using an 18 second scan-time; it allowed the exact intra-renal localization in the only case of primary WT which was considered an extra-renal mass on both IVP and US, but also failed to detect the small mass described above, which was a surgical surprise in a kidney controlateral to a large WT. In 2 cases CT consented a more precise documentation of the tumor's local extension; in one of the above cases it distinguished a liver metastasis and in another detected two pulmonary metastases which had been missed on US and chest x-ray, respectively. In the remaining 5 cases, CT findings were similar to IVP and US results. (no Refs)

10. PREOPERATIVE CHEMOTHERAPY FOR WILMS' TUMOR (MEETING ABSTRACT)

Bracken RB, Sutow W, Jaffe N, Guarda L
No affiliation given
77th Annual Meeting of the American Urological Association, Inc May 16-20, 1982, Kansas City, Missouri. American Urological Association 254 pp., 1982.

Between January 1, 1961, and September 1, 1980, at MD Anderson Hospital and Tumor Institute, 19 children with Wilms' tumor judged clinically to be unresectable were treated preoperatively with chemotherapy. After 2 to 4 courses markedly evident tumor reduction occurred in 16 patients. Furthermore, after this treatment, 16 tumors could be completely resected, another required radiation to shrink the tumor, and only 2 tumors could not be excised. Shrinking large Wilms' tumors before surgery has a number of other benefits that include the following: decreased operative risk, difficulty, blood loss, and operating time; better chance for an en bloc tumor excision with reduced necessity for the resection of portions of adjacent organs, and reduced chance for tumor rupture. Preoperative chemotherapy for Wilms' tumor produces consistent, dramatic, and rapid tumor reduction without troublesome toxicity. Such treatment is presumably active against both obvious and unrecognized metastases while it reduces the primary tumor. Furthermore, neither surgery nor postoperative treatment need to be delayed or altered because of the drug therapy given prior to surgery. For these reasons we feel chemotherapy should be given preoperatively to patients with Wilms' tumors that are unresectable, and considered for those who have extensive vena caval tumor thrombi or who may require the en bloc excision of adjacent viscera. (no Refs)

11. INOPERABLE WILMS' TUMOR: THE IMPACT OF CHEMOTHERAPY-INDUCED PATHOLOGICAL CHANGES (MEETING ABSTRACT)

Guarda LA, Jaffe N, Sutow W, Bracken RB, Ayala AG, Wang YM
M. D. Anderson Hospital and Tumor Institute, Houston, TX, 77030
Proc Am Soc Clin Oncol; 1:C-467 1982

To obtain tumor reduction, 19 children with inoperable Wilms' tumor received preoperative chemotherapy. All of these children were under the age of 30 months and received Vincristine alone or in combination with Actinomycin-D. Radiation was given, additionally, to 2 patients. Histologically, all tumors exhibited the triphasic pattern of blastematous, stromal and epithelial elements. The major impact of chemotherapy was seen in the stromal element which was reduced to an edematous, fibrovascular component with foamy histiocytes and lack of atypical stromal cells. The blastematous nodules had shrunken while undergoing partial or total necrosis. Necrotizing arteritis with fibrinoid necrosis, acute inflammation and secondary thrombosis were prominent vascular changes. The epithelial elements in all cases were unaffected or minimally affected by the therapy, and similarly, a well differentiated rhabdomyoblastic component in 6 cases was well preserved. Unfavorable histologic features were not seen. In conclusion, the chemotherapeutic effect in Wilms' tumor is primarily in the stromal elements and secondarily in the blastematous nodules. Epithelial and differentiated skeletal cell components are generally resistent to chemotherapy. The histologic evaluation helps to evaluate the in vivo activity of the chemotherapeutic agents. (no Refs)

12. CHEMOTHERAPEUTIC-INDUCED HISTOLOGIC CHANGES IN WILMS' TUMORS (MEETING ABSTRACT)

Guarda L, Jaffe N, Bracken RB, Ayala AG
Department of Pathology, M. D. Anderson Hospital, Houston, TX
71st Annual Meeting of the International Academy of Pathology (United States-Canadian Division), March 1-5, 1982, Boston, Massachusetts. International Academy of Pathology 95 pp., 1982.

This is a clinical pathologic study of 19 patients with inoperable Wilm's tumors who received chemotherapy to achieve tumor reduction and became suitable for nephrectomy. The age of the patients ranged from 8 to 30 months. All patients received vincristine alone or in combination with actinomycin-D. Radiation was additionally given to two patients. Characteristic features of Wilm's tumors, including blastematous, stromal, and epithelial elements were present in all tumors. The most dramatic change in 18 cases affected the stromal elements which revealed an edematous, fibrovascular background with granulation tissue and histiocytes, and lack of atypical cells. The blastematous nodules were generally reduced in size, necrotic, or undergoing necrosis. Vascular changes, present in 14 cases, consisted of necrotizing arteritis with fibrinoid necrosis, focal acute inflammation, and secondary thrombosis. The epithelial elements, unchanged by the chemotherapy, were present throughout the tumor. Furthermore, a well-differentiated rhabdomyoblastic component, in six cases, was also unchanged by the therapy. None of these tumors demonstrated an unfavorable histology. (no Refs)

13. SURVIVAL IN BILATERAL METACHRONOUS (ASYNCHRONOUS) WILMS' TUMORS (MEETING ABSTRACT)

Casale AJ, Flanigan RC, Moore PJ, McRoberts JW
No affiliation given
77th Annual Meeting of the American Urological Association, Inc May 16-20, 1982, Kansas City, Missouri. American Urological Association 254 pp., 1982.

This report is a retrospective analysis of 50 cases of metachronous (asynchronous) Wilms' tumors including two cases treated at the University of Kentucky Medical Center and 48 patients previously reported in the literature. Data accumulated before and after the onset of the National Wilms' Tumor Study I (NWTS I) in 1969 are evaluated separately. Although the number of cases of metachronous lesions (8) reported since 1969 is small, the two year survivorship for these 8 cases (87.5%) closely approximated that reported by the NWTS for bilateral simulatneous Wilms' tumor (89.7% in 29 cases) and unilateral Wilms' tumors (85% in 429 cases). The observed dif-

ference is a likely chance fluctuation as the chi-square test for the equality of the survival rates of these 3 groups yields a chi square (1) equals 0.07. Since the advent of the NWTS, the prognosis of patients with Wilms' tumors has improved considerably. The incidence of metachronous lesions in NWTS II and III has also dropped dramatically suggesting that adjuvant chemotherapy, which is now given most children with Wilms' tumor, may be suppressing the development of incipient tumors on the opposite side. (no Refs)

14. POOR PROGNOSIS WITH MEDIASTINAL METASTASES IN WILMS' TUMOR OF FAVORABLE HISTOLOGY (MEETING ABSTRACT)

Cushing BA, Brough AJ, Das L, Watts FB, Philippart AI, Lusher JM
Wayne State University School of Medicine, Detroit, MI, 48201
Proc Am Soc Clin Oncol; 1:C-718 1982

Wilms' tumor patients (1972-80) were studied for patterns of intrathoracic metastases. All had favorable histology; mean age at diagnosis (MA) -4.5 yrs. Initial chemotherapy ranged from single agent to three-drug combination (actinomycin, vincristine, adriamycin). Intrathoracic metastases occurred in 14 from 0-28 mo from diagnosis. At discovery of intrathoracic metastases all received radiation (1200-2000 rads) to the chest, some with mediastinal boosts. Five children with parenchymal and one with parenchymal and hilar metastases appearing 0-28 mos after diagnosis survive disease-free 33-116 months after metastases appeared. Eight children developed parenchymal and mediastinal metastases. Time from diagnosis to parenchymal metastases was 0-7 mo; time from diagnosis to mediastinal metastases was 0-16 mo; and in four both sites appeared simultaneously. Death occurred in all eight patients 7-25 months from diagnosis. Only one child had evidence of recurrence outside the chest. (no Refs)

15. RELAPSED WILMS' TUMOR - FACTORS AFFECTING SURVIVAL AND CURE (MEETING ABSTRACT)

Wilimas J, Hammond E, Champion J, Mehash Kumar AP
St. Jude Children's Research Hospital, Memphis, TN, 38101
Proc Am Soc Clin Oncol; 1:C-423 1982

From 1969 to 1981, 24 of 137 consecutive patients with Wilms' tumor developed relapse. We analyzed their records for the following factors: sex, race, stage, recurrence site (local vs pulmonary), single vs multiple pulmonary recurrence, histology (favorable vs unfavorable), initial therapy, age at diagnosis and relapse, and length of initial comple remission (CR). Two patients originally had Stage I disease, 5 Stage II, 11 Stage III, and 6 Stage IV. Nineteen patients had favorable histology, 5 unfavorable. Length of initial CR ranged from 2-82 months; 9 patients had a CR less than 6 months, 6 from 6-12 months and 9 greater than 12 months. Sixteen patients relapsed while receiving therapy and 9 after cessation of therapy. Relapse was manifested by local recurrence in 3 and by pulmonary relapse in 21 (10 single nodules, 11 multiple). Therapy following relapse varied with regimens including high dose vincristine/dactinomycin, adriamycin, cisplatinum, radiation therapy and surgery. The log-rank test was used to examine the influence on survival of each characteristic. Only one variable, length of initial CR appears to influence the length of survival. No patient whose initial CR was less than 6 months survived. Only 2/6 with an initial CR 6-12 months survived. Of 9 patients whose initial CR was greater than 12 months, 5 are living disease-free for periods of 29-116 months and 1 is alive with tumor. Since these 7 patients have been disease free for over 2 years, they are probably cured. We conclude that despite the excellent response of Wilms' tumor to initial therapy, salvage of relapsed patients is less than optimal. Patients who develop relapse are more likely to be cured if their initial CR is greater than 12 months. (no Refs)

16. THE PRESENT STATE OF RADIODIAGNOSTICS OF RENAL TUMOURS IN CHILDREN (MEETING ABSTRACT)

Kolihova E, Zitkova M, Obenbergerova D, Ansari AM
Department of Radiology, University Hospital Motol, Prague, Czechoslovakia
Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

The authors present a report based on their seventeen year experience with renal tumors investigated in the years 1965-1981. Of the 151 cases of tumor diseases of kidneys 125 were nephroblastoma and 26 other unusual tumors which caused either primary or secondary afflictions of the kidneys. The prognosis of a child suffering from a kidney tumor depends on prompt assessing of the tumor condition, its stage and ascertainment of the state of the second kidney. In recent years complex radiodiagnostics has been enhanced by new methods - the ultrasound and the CT (computed tomography)- which have substantially restricted the use of angiography. Angiography continues to be indispensable for bilateral tumors, is capable of refining diagnostics in less usual kidney tumors and provides the most suitable conditions for surgical treatment which must be radical yet sparing. It is an irreplaceable tool in cases when aggressive conservative treatment is applied prior to operation and histology, for it assists in establishing the biological nature of the tumor and reduces the risk of harming the child suffering from benign affection. (no Refs)

17. CYSTIC PARTIALLY DIFFERENTIATED NEPHROBLASTOMA (MEETING ABSTRACT)

Gaillard D, Behar C, Birembaut P, Ploton D, Daoud S, Morville P, Munzer M
Centre Hospitalier Universitaire, Reims, France
Excerpta Med Int Congr Ser; 570:295 1982

Cystic partially differentiated nephroblastoma is a Wilms' Tumor variant of infancy and early childhood that has been reported variously under many names. It is an uncommon lesion: 24 cases have been described in the literature. The purpose of this paper is to present another case and to point out a few original morphologic features. A 15 months old boy was hospitalized for an abdominal mass in the right flank. Intravenous pyelography revealed a distortion of the lower renal pelvis by a huge tumor. It appeared to have an heterogeneous echostructure with cystic and necrotic figures. Chemotherapy reduced the volume of the mass before nephrectomy. The excised kidney weighed 445 g. At the lower pole of the kidney a cystic, necrotic, pseudo-encapsulated mass of 9 cm in largest dimension, had the typical pathologic features of a cystic partially differentiated nephroblastoma with blastema, tubular structures and many striated muscle cells or rhabdomyoblasts in the mesenchyme the cysts communicated neither with each other nor with the renal pelvis. This tumor appears to be made of very immature tissue: like the embryonic ducts, fibronectin is localized within the tubular basement membranes, and there are lot of type I collagen in the mesenchyme. But contrary to embryonic kidney, there are no leucine amino peptidases in the tubular cells of the tumor. Those very immature features and the possible occurrence of numerous mitoses in the blastematic elements are arguments in favor of a malignant potential tumor and regular follow up is recommended. (no Refs)

18. NEPHROSONOGRAPHY IN CONGENITAL MESOBLASTIC NEPHROMA HELPFUL DIAGNOSTIC FEATURES (MEETING ABSTRACT)

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Department of Radiology, Royal Hospital for Sick Children, Glasgow, G3 8SJ, Scotland

Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

Recent experience in pre-operative ultrasound assessment of infants with this well recognized relatively rare tumor of infancy indicates that there are features which suggest this diagnosis and differentiate it from Wilm's tumor. The echographic appearances are less irregular than in Wilms' tumor and more reminiscent of infantile polycystic disease with small cysts in dense stroma but occurring unilaterally with entirely normal appearances in the other kidney. Unilateral multicystic kidneys tend to show more variable cyst size and less extensive stroma. Mesoblastic nephroma is relatively benign although local recurrence happens it does not metastasize and requires merely local surgical excision. A strong presumptive pre-operative diagnosis in a large intrarenal tumor in infancy helps to avoid unnecessary pre-operative attempts to reduce tumor size and hematogenous spread by radiotherapy or chemotherapy with possible hazard to the infant. (no Refs)

19. CLEAR-CELL SARCOMA OF THE KIDNEY IN CHILD. 4 CASES (MEETING ABSTRACT)

Aboulola M, Boukhelous B, Ladjadj M, Raybaud C, Lebreuil G

Department of Surgery, Hospital Mustapha, Algiers, Algeria

Excerpta Med Int Congr Ser; 570:300 1982

In childhood, the 'clear-cell sarcoma' of the kidney is a rare neoplasm recently identified. The authors have discovered 4 such cases among the sixty-three kidney neoplasms examined in the last six years. In the first case the child died twelve months after the beginning of the symptoms. The course of the disease was marked by the extreme diffusion of the skeletal localizations. In the second one, the child is in good health two years after surgery. The third patient is a 2 years child: on the left kidney, we discovered a big tumor which weighed 1 800 gr. Surgical excision and chemotherapy were performed. The child is in good health 9 months later. The fourth one is a 2 year old boy. A huge tumor of the right kidney (1 200 gr) was found and excised during surgical exploration. Chemotherapy was performed later on. The child is in good health 10 months later. The macroscopic features show large and heavy masses commonly weighing over I Kg and often hemorrhagic and necrotic: the histological ones represent an undifferentiated sarcoma with two possible tendencies. In the first observation, it was of hyalin type and in other ones it was composed of clear cells. These two patterns are often intermingled in the same tumor. The nuclei are monomorphic, often regular and mitotic activity is moderate throughout the tumors. The same undifferentiated sarcomatous features can be seen in the ultrastructural studies: so we can clearly separate the 'clear cell sarcoma' from the pure sarcomatous Wilm's tumors which have rhabdomyoblastic or l... fibroblastic tendency. (3 Refs)

20. MALIGNANT NEUROECTODERMAL TUMOR OF THE OVARY: A DISTINCTIVE FORM OF MONODERMAL TERATOMA (MEETING ABSTRACT)

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Massachusetts General Hospital, Boston, MA

71st Annual Meeting of the International Academy of Pathology (United States-Canadian Division), March 1-5, 1982, Boston, Massachusetts. International Academy of Pathology 95 pp., 1982.

Five cases of a rare form of ovarian monodermal teratoma composed entirely or almost entirely of malignant neuroectodermal tissue are described. Four of them were undoubtedly primary, but one was possibly metastatic from the adrenal gland. The ages of the four patients with definitely primary tumors ranged from 13 to 17 years; the fifty patient was 18 years old. The presenting symptoms were similar to those of ovarian cancers in general. Grossly the tumors ranged from 15 to 20 cm in diameter; two were predominantly solid and three predominantly cystic. On microscopic examination, two of the definitely primary tumors were pure, whereas two others contained minor foci of mature teratoma; they were composed of poorly differentiated neuroectodermal tissue with focal differentiation in the direction of neoplasms of the central nervous system. The term 'primitive neuroectodermal tumor,' which has been applied to similar tumors in the central nervous system of children, is most appropriate for these neoplasms. Only one of the four patients survived for more than 5 years; the others died of tumor from 2 months to 4 years postoperatively. The fifth patient presented with a unilateral ovarian neuroblastoma and abdomnial metastases; autopsy more than 6 months later revealed involvement of numerous sites, including both adrenal glands. The clinical and pathologic features suggested that the tumor was primary in the ovary. Primitive neuroectodermal tumors of the ovary are important to recognize since they are easily confused with other malignant neoplasms. (no Refs)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

21. THE VALUE OF COMPUTERIZED TOMOGRAPHY IN THE DIAGNOSIS AND THERAPY OF OSTEOID OSTEOMA (MEETING ABSTRACT)

Ball P

Department of Pediatric Radiology, University Frankfurt, Frankfurt, W. Germany

Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

A report of four children with the histologically confirmed diagnosis of osteoid osteoma is given. Two of these children were examined by computerized tomography. In the case of a 12 year old girl, the final diagnosis was made by CT (computerized tomography). In both cases CT was invaluable to the surgeon by determining the exact localization of the tumor. The two remaining children who were examined before CT was in use posed quite a problem in differential diagnosis due to the localization of their lesion. The diagnosis could only be made histologically. (no Refs)

NEUROBLASTOMAS AND CNS TUMORS

22. ULTRASONIC EVALUATION OF NEUROBLASTOMA (MEETING ABSTRACT)

White SJ, Stuck KJ, Blane CE, Silver TM
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A167 1982

The gray scale ultrasonic features of neuroblastoma have received relatively little attention compared CT (computerizd tomography). Sonograms of 21 children with neuroblastoma were analyzed, including 14 examinations of the primary tumor and 31 follow-up studies. The criteria assessed were size, shape, location, extension across the midline, internal echoes, sonolucent areas, margination, and presence of metastatic disease. Although all masses were heterogeneous, 12 primary tumors were predominantly hyperechoic. No true capsules or pseudocapsules were identified in contrast to Wilms tumors. Ultrasonography was particularly useful in following liver metastases in Stage IV-S. Real-time sector scanning facilitates evaluation of disease extent and improves diagnostic accuracy. Based on second look operations, ultrasonography appears to be a reliable method to monitor abdominal disease as often as necessary during therapy. (no Refs)

23. IMPROVED STAGING CRITERIA FOR LOCALIZED AND REGIONAL NEUROBLASTOMA (MEETING ABSTRACT)

Evans AE, D'Angio GJ, De Lorimier A, Finklestein JZ, Sather H, Leikin S, Hammond D
Children's Hospital of Philadelphia, Philadelphia, PA, 19104
Proc Am Soc Clin Oncol; 1:C-668 1982

The outcome for patients (pts) with neuroblastoma (NBL) varies widely from 100% survival for tumors confined to the organ of origin (CCSG (Children's Cancer Study Group) Stage I) to an almost 100% death rate for those over 12 months old with bone metastases (Stage IV). This report defines the criteria used to discriminate between those with intermediate prognoses (Stages II and III). Data from the records of 250 CCSG patients with Stage I, II and III NBL were analyzed. Items recorded included age, site of primary lesion, pattern of tumor spread, extent of surgical removal, status and site of lymph nodes (LN), and outcome. The significance of individual variables was calculated by univariate and multivariate analyses. The items, other than increasing age, having significant correlations with poor outcome were 1) extension of tumor across the midline by infiltration in continuity and 2) involvement of contra-lateral LN. Of no independent prognostic importance for Stages II and III were 1) positive ipsilateral LN, and 2) microscopic or gross residual disease less than or equal to 25% the original size. Gross residual tumor greater than 25% is strongly correlated with Stage III. (no Refs)

24. EFFECT OF NUTRITION STAGING ON TREATMENT DELAYS AND OUTCOME IN STAGE IV NEUROBLASTOMA (MEETING ABSTRACT)

Detamore CM, Rickard KA, Coates TD, Groufeld JL, Weetman RM, Provisor AJ, White NM, Oei TO, Loghmani ES, Yu P, Baehner RL
Indiana University School of Medicine, Indianapolis, IN, 46223
Fed Proc; 41(3):354 1982

The effect of the state of nutrition of 18 children with stage IV neuroblastoma at diagnosis and during initial therapy was evaluated with respect to treatment delays and drug dosage alterations, tumor response, days to first event (relapse or death) and survival. All patients received similar therapy (CCSG protocol CCG 371). Based on nutrition staging at diagnosis, 9 were classified as malnourished, 4 were randomized to receive total parenteral nutrition (TPN), 4 peripheral parenteral nutrition plus enteral nutrition (EN) for 28 days, 1 died before randomization. Nine were nourished at diagnosis; 7 received EN, 2 TPN. By life table analysis, the duration of remission was greater in the nourished than the malnourished and a survival trend was evident at 1 year. The median length of survival for the nourished group was 12 months whereas the malnourished group had a median survival of 5 months. Nine remained nourished or were becoming renourished during the first 21 days of the therapy; 1 had treatment delays and decreased drug dosages. Seven were becoming malnourished or remained malnourished; 6 had treatment delays. These data support the idea that nutrition staging at diagnosis and during initial treatment should be an integral part of protocol design and initial evaluation of children with stage IV neuroblastoma. (no Refs)

25. DISEASE FACTORS THAT INFLUENCE THE PROGNOSIS OF PATIENTS WITH LOCALIZED AND REGIONAL NEUROBLASTOMA (MEETING ABSTRACT)

Evans AE, D'Angio GJ, Sather H
Children's Hospital Cancer Research Center, Philadelphia, PA
Am J Clin Oncol; 5(2):129 1982

Correct staging of patients can be an important factor in the selection of proper treatment. Neuroblastoma has a uniquely wide range of prognoses from predictably spontaneous regression to relentless progression and death. Determination of those disease variables that have significant predictive value is essential for the therapist. Staging of neuroblastoma has to date, included such factors as encapsulation, resectability, amount of residual disease, presence and site of regional lymph nodes, and sites of distant spread. To determine which factors influenced outcome in patients with regional disease, information was abstracted from the records of 257 patients entered on two CCSG (Children's Cancer Study Group) studies for localized neuroblastoma. The information analyzed included the size and extent of the primary tumor the presence of microscopic or gross residual disease, the surgeon's impression of the site, and involvement of regional nodes and their histologic appearance. The independent variables that correlated best with favorable outcome were 1) complete removal of the primary tumor, 2) unilateral disease, and 3) negative lymph nodes according to the surgeon. Bad prognostic factors were 1) tumor infiltrating across midline structures and 2) positive contralateral lymph nodes. Factors not influencing outcome were gross or microscopic residual disease. (no Refs)

26. NEUROBLASTOMA IN INFANTS. EXPERIENCE WITH 15 PATIENTS (MEETING ABSTRACT)

Pluss HJ, Zellweger U, Hitzig WH
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Excerpta Med Int Congr Ser; 570:46 1982

Neuroblastoma, as the most common solid malignant tumor outside the CNS, accounts for 5-10% of childhood cancer deaths. This is due to the fact that, at diagnosis, most patients have already widespread metastatic disease. Those 15-20% having localized resectable disease have an excellent prognosis. The same is true for infants of less than one year at diagnosis: although the disease here is often metastatic and not resectable, a significant proportion of these infants can be cured. There is

good evidence in this group, that after resection of the primary tumor metastases tend to regress spontaneously. Despite this fact, most oncologists feel that, besides surgery, these infants need further treatment, but it is very controversial what, how much and how long. The analysis of the treatment used at our department, and its results, in 15 infants seen by us since 1971 shows that the answer should not be uniform, but based on stage and biological behavior of the tumor in the individual patient. (no Refs)

27. COMPUTED TOMOGRAPHY IN NEOPLASMS OF THE POSTERIOR FOSSA IN CHILDREN.

Segall HD, Zee CS, Naidich TP, Ahmadi J, Becker TS
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Radiol Clin North Am; 20(1):237-253 1982

Role of computed tomography (CT) in the diagnosis of neoplasms of the posterior fossa in children is discussed focusing on their CT appearances prior to treatment. Three major histologic types of neoplasms can be distinguished: medulloblastoma, astrocytoma, and ependymoma. Of 129 histologically verified tumors of the posterior fossa, 52 were medulloblastomas, 33 proven cerebellar and fourth ventricular astrocytomas, and 16 ependymomas. The commonest of the infrequent neoplasms was the mixed glioma, of which only three were verified. CT appearances of the three most common neoplasms of the cerebellum and fourth ventricle are discussed. Brainstem neoplasms account for a significant number of tumors of the posterior fossa in children. In order to maintain a high detection rate for these tumors, a thorough anatomical study of the posterior fossa must be done and all the nuances and subtleties of anatomy must be known. Most brainstem tumors present before much compromise of the aqueduct or fourth ventricle exists. Therefore, CT generally shows normal sized third and lateral ventricles when these patients are initially seen. Normal CT anatomy of the posterior fossa in children is described and CT evaluation and depiction of brainstem neoplasms in children and adolescents is discussed. Extra-axial neoplasms are rare within the posterior fossa among pediatric patients, but may include acoustic and trigeminal neurinomas, chordoma, dermoid, epidermoidoma, meningioma, metastatic neuroblastoma, and teratoma. (46 Refs)

28. A PHASE II TRIAL OF PRE-RADIATION CYCLOPHOSPHAMIDE IN NEWLY DIAGNOSED DISSEMINATED CHILDHOOD BRAIN TUMORS (MEETING ABSTRACT)

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Memorial Sloan-Kettering Cancer Center, New York, NY, 10021
Proc Am Soc Clin Oncol; 1:C-689 1982

Children with disseminated primary intracranial malignancies at diagnosis have a poor prognosis following conventional radiation therapy. Once neuraxis radiation is administered it is difficult to add intensive chemotherapy. A modified phase II trial of pre-radiation chemotherapy was conducted in 14 poor risk patients. Eleven had disseminated CNS disease and 2 had bone marrow involvement at diagnosis. Their diagnoses were medulloblastoma (5), pineoblastoma (3), cerebral primitive neuroectodermal tumor (3), dysgerminoma (2) and choroid plexus carcinoma (1). Nine received 2 courses of intravenous cyclophosphamide (80 mg/kg) alone over 8 weeks and 5 others received 3 daily doses of intrathecal Ara-C (cytosine arabinoside) (50 mg/m(2)) and oral hydroxyurea (40 mg/kg) with each course of cyclophosphamide. There were 4 complete responses (2 dysgerminomas, 1 pineoblastoma, 1 primitive neuroectodermal tumor) and 4 partial responses (3 medulloblastomas, 1 pineoblastoma) to chemotherapy alone for a response rate of 57%. Twelve patients subsequently tolerated the planned dose of neuraxis radiation. The median survival of all patients was 10 months and 6 of 7 deaths were related to recurrent disease. The hematologic toxicity was appreciable and 1 death resulted from gram negative septicemia. Aseptic meningitis occurred in 4 out of the 5 patients receiving intrathecal Ara-C. (no Refs)

29. EFFECT OF HYPOTHALAMIC AND PITUITARY IRRADIATION ON PUBERTAL DEVELOPMENT IN CHILDREN WITH CRANIAL TUMORS.

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J Clin Endocrinol Metab; 54(6):1164-1168 1982

The purpose of the present study was to report on gonadotropin function and puberty of a large group of children treated by cranial irradiation for cranial and neck tumors and medulloblastoma. Forty-five children of pubertal age were investigated. The mean interval time since radiation was 5 2/12 yr. Gonadotropin and gonadal function were evaluated by clinical criteria, plasma sex steroids, and plasma LH and FSH responses to LRH. Puberty was complete or progressing normally in 31 cases and was abnormal in 14 cases. Severe gonadotropin deficiency, with lack of or slow progression of puberty and decreased LH and FSH responsiveness to LRH, was observed in five cases; two of these had moderately elevated plasma PRL levels. Secondary amenorrhea or lack of pubertal progression was found in five other cases. GH deficiency was associated with gonadotropin deficiency in 9 of these 10 cases. Adrenal function, estimated by basal dehydroisoepiandrosterone, dehydroisoepiandrosterone sulfate, and estrone, was normal according to pubic hair stages. In conclusion, complete or partial gonadotropin deficiency can be the consequence of cranial irradiation in children receiving 6,000 rads or less. It is usually associated with GH deficiency. The site of the damage on the pituitary gland or the hypothalamus remains to be demonstrated. (Author abstract) (22 Refs)

30. LATE PSYCHOLOGICAL AND INTELLECTUAL EFFECTS ON PATIENTS AND THEIR FAMILIES FOLLOWING DEFINITIVE RADIOTHERAPY FOR CHILDHOOD MEDULLOBLASTOMA (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-194 1982

Only recently have there been sufficient survivors of medulloblastoma to investigate late effects of treatment on higher brain functions. We have examined eight patients who were initially treated a minimum of three years ago with total neuraxis irradiation without chemotherapy for medulloblastoma and are now presently disease free. All patients were treated before the age of ten years. Six nearest age siblings were compared to the medulloblastoma patients. No treated patient had a verbal or performance IQ that exceeded the age matched sibling and all but one scored lower. In the eight patients the median verbal intelligence quotient (IQ) was 87, the median performance IQ was 87, and the median full scale IQ was 86. In the six siblings the median verbal IQ was 100, performance IQ 113 and full scale IQ 104. Of particular interest is the psychological

effect of the treatment on the other members of the family. When asked to draw the family circle siblings often represented the patients as being outside the group and sometimes even represented them as dead. Parents also admitted to regarding their children in a different light in that they frequently coped with identical behavior in patient and sibling in distinct ways. (no Refs)

31. COMPUTER-TOMOGRAPHIC MANIFESTATIONS OF OEDEMA IN BRAIN TUMORS OF CHILDREN (MEETING ABSTRACT)

Kalvach P, Havlova M, Nevsimalova S, Dittrich J

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Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

Computer-tomography (CT) is a most suitable method for detection as well as analysis of brain edema and it's various types. We evaluated the extent and character of edema in a group of 91 children with brain tumors, hitherto examined in the CT department of our clinic. Than an attempt has been made to investigate the vasogenic features of the edemas, as they are generally referred in tumors and to find typological relations to their histogenetical verifications. In a part of the patients there was also possible to compare the development of the edema in several examinations, mainly before and after surgical treatment and radiotherapy. Several observations to differential diagnostic criteria with special emphasis to dystrophic hypodensity and brain immaturity will be discussed. (no Refs)

32. MENINGEAL GLIOMATOSIS SECONDARY TO BRAIN STEM GLIOMA (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-688 1982

Brain stem gliomas (BG) are locally infiltrative tumors with variable degrees of malignancy in which dissemination is considered rare. Four of 15 (27%) children with newly diagnosed BG seen consecutively over the past 40 months developed clinically significant meningeal gliomatosis (MG). Two children with MG and 4 children without MG underwent surgical exploration at time of diagnosis. No important differences in the CT (computerized tomography) appearance of the initial tumors were noted between the 2 groups. Symptoms of MG occurred at a median of 5.5 mos (range 4-8 mos) after diagnosis and in 3 children was the initial sign of disease relapse. Presenting symptoms of MG were local back pain (4), progressive paresis (3), headache (2) and bladder dysfunction (2). Myelography was performed in all children and in 3 demonstrated multifocal intradural filling defects and high degree block, suggesting subarachnoid disease. Lumbar cerebrospinal fluid (CSF) cytology was negative for malignant cells in 3 of 4 children with MG, despite the presence of a CSF pleocytosis (4 of 4) and elevated protein (3 of 4). In the one child with positive CSF cytology, myelography was normal and the extent of MG could only be appreciated at autopsy. All 4 children with MG died with a median of 3 mos (range 1 to 7 mo) following onset of MG. Necropsy confirmed diffuse MG in all 4 children. Foci of malignant astrocytoma were detected at the primary site and in areas of leptomeningeal involvement. (no Refs)

33. REVIEW OF HISTOPATHOLOGY OF RETINOBLASTOMA (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-694 1982

Retinoblastoma is the most common malignant disease reported in Pakistani children. It constitutes 36% of all childhood cancers. The increase is in the unilateral and sporadic type and not in the bilateral genetic retinoblastoma. Ten cases were selected at random from the retinoblastoma cases on file at The Jinnah Postgraduate Medical Center in Karachi. Histology on these cases was compared to that seen in the US. Nine of the ten cases showed extensive ocular involvement by retinoblastoma. The tenth showed a small tumor of uncertain origin in an area not overlying the retina. The nine cases showed in addition extensive necroses without evidence of differentiation such as Flexner Wintersteiner rosettes or flueretts. In the only two specimens that included optic nerves there was tumor invasion. A third case showed diffuse extrascleral extension of the tumor. These three cases showed uveal extension. The retinoblastoma tumor cells had typical basophilic nuclei and scant cytoplasm and appeared similar to retinoblastoma cells in eyes obtained in the US and Europe. From this study on a small number of cases it was evident that the pathology is similar to that seen in the US thus the higher reported frequency of retinoblastoma in Pakistani children is confirmed. (no Refs)

LYMPHOMAS AND LEUKEMIAS

34. HODGKIN'S DISEASE IN CHILDREN: TREATMENT RESULTS WITH MOPP AND LOW-DOSE, EXTENDED-FIELD IRRADIATION.

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Cancer Treat Rep; 66(4):949-959 1982

Combined therapy with mechlorethamide, vincristine, prednisone and procarbazine (MOPP) and extended-field irradiation for all children with Hodgkin's disease (except those with favorable clinical stage [CS] 1) was effective in disease control. Overall 5-yr survival and relapse-free survival rates were 92% and 82%, respectively. Only one of 27 CS 2 and 3 patients has relapsed (median follow-up, 4.3 yr). Two patients in complete remission died of viral infection. The cost-benefit ratio for such treatment remains to be determined. Morbidity was decreased by the omission of staging laparotomy with splenectomy and by reduction in radiation dose and to a lesser extent volume, but it was increased by the addition of MOPP. In such combined treatment, the smallest number of cycles of MOPP, the lowest radiation dose, and the smallest radiation volume that may be used without loss of treatment effectiveness remain to be determined. (Author abstract) (3 Refs)

35. NEUROPSYCHOLOGICAL SEQUELAE OF CRANIAL RADIATION CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-195 1982

Eighteen children with ALL had been randomly assigned to treatment regimens with (8) and without (10) cranial radiation (2400 rads) and survived in continuous cmplete remission for over 3 1/2 years. A battery of neuropsychological tests was administered to each child by an individual blind to the child's therapy. Mean scores on the Wechsler Intelligence Scale for Children-Revised, Developmental Test of Visual Motor Integration, Bender Gestalt Test, Matching Familiar Figures, and children's versions of Halstead's Categories and Trials A and B revealed no significant differences as a function of the presence or absence of cranial radiation. An overall depression of intellectual and visual-motor performance level for both groups relative to population norms does suggest a more general effect of ALL or its therapy. Inspection of individual patterns of performance suggests that boys, who were under-represented in the radiation group, may be more susceptable to neuropsychological sequelae of ALL treatment in a manner parallel to the distribution of learning disabilities by sex in the health population. (no Refs)

36. INTELLECTUAL FUNCTION IN LONG-TERM SURVIVORS OF CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-182 1982

Fifty-one patients diagnosed with ALL who currently are surviving free of disease and off chemotherapy were evaluated using the Wechsler Intelligence Scale for Children - Revised (WISC-R). All patients were treated on CCSG protocol CCG-101 and were diagnosed between 1972 and 1974. Induction and maintenance chemotherapy given was identical and all patients received CNS prophylaxis which included cranial radiation (C-RT) 2400 rad. The median age at the time of C-RT was 4.7 years. The mean full scale IQ for the group was 94.7 +/- one standard error of the mean of 2.1. The mean verbal IQ and performance IQ were 94.0 +/-1.8 and 96.7 +/-2.2 respectively. The only significant reductions were found in the scaled scores of three of the verbal subtests. Four patients had a verbal IQ which was more than 20 points lower than their performance IQ while only 1 patient had a performance IQ that was 20 points lower than the achieved verbal IQ. Patients between 4 and 6 years of age at the time of radiation had the lowest mean full scale IQ as compared to patients between 2-4 years or those greater than 6 years of age. The differences between the age groups were not statistically significant at the 5% level. The effects of treatment on intellectual function appear to be subtle and primarily reflected in the areas of the verbal IQ relating to information, experience, distractability, and rote memory. These data indicate a minimal reduction in the IQ scores of patients treated with systemic chemotherapy and C-RT as compared to population standards. (no Refs)

37. EFFECT OF CRANIAL RADIATION (CRT) ON NEUROPSYCHOLOGIC FUNCTION IN CHILDREN WITH ACUTE LYMPHOCYTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

Rowland J, Glidewell O, Sibley R, Holland JC, Brecher M, Tull B, Berman A, Glicksman A, Forman E, Harris M, McSweeny J, Jones B, Black M, Cohen M, Freeman A

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Proc Am Soc Clin Oncol; 1:C-477 1982

Late effects of central nervous system (CNS) prophylaxis on neurophyschologic function were evaluated in 86 children with ALL treated on CALGB protocols from 1968 to 1979. Patients studied were randomized to one of three prophylaxis arms: intrathecal methotrexate (ITMTX) alone (33), ITMTX with CRT (2400r)(26), or ITMTX and intermediate dose methotrexate (IDM)(500mg/M2 iv x 3)(27). All patients were in their first continuous remission and were at least one year post CNS prophylaxis at evaluation. Mean age was similar at diagnosis by group but differed at followup. Psychological tests included the Wechsler intelligence tests (WISC-R/WAIS), the Wide Range Achievement Test, components of the Halstead-Reitan Neuropsycholgic Battery, and four tests of special abilities. The CRT group scored significantly lower than both the ITMTX and IDM groups on Full Scale (FSIQ), Verbal (VIQ) and Performance (PIQ) IQs. There were no differences in IQ scores between IDM and ITMTX groups. Results were not dependent upon age at treatment. In contrast to the IQ data, no treatment differences were found on any of the other neuropsychological tests. These findings confirm that addition of CRT to ITMTX in the CNS prophylaxis of childhood ALL results in IQ deficits. Longterm followup will be needed to monitor both the stability of these differences and future neuropsychologic function. (no Refs)

38. DISTINGUISHING FEATURES OF THE IMMUNOLOGY OF HODGKIN'S DISEASE IN CHILDREN.

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Cancer Treat Rep; 66(4):969-975 1982

Laboratory tests of immunologic function were done in 96 children with Hodgkin's disease, at diagnosis and during and after treatment. Over the sam period of time, 29 age-matched control children were teste.. The results presented in this report indicate that the immunology of childhood Hodgkin's disease has some features that distinguish it from the immunologic features of the disease in adults: (a) no progressive lymphopenia was found with advanced clinical stages; (b) peripheral blood T-lymphocyte counts were normal or high, and slight B lymphocytopenias were observed in children at all stages of the disease; (c) in spite of normal T-lymphocyte counts, a defective response to phytohemagglutinin stimulation was seen at diagnosis; and (d) recovery of the phytohemagglutinin response occurred with treatment and was related to modality of therapy and prognosis. (Author abstract) (18 Refs)

39. AMERICAN BURKITT'S LYMPHOMA IN CHILDREN - ULTRASONOGRAPHIC FEATURES (MEETING ABSTRACT)

Armstrong EA, Kennedy LA
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Twenty-fifth Annual Meeting of the Society for Pediatric Radiology, May 7-9, 1982, New Orleans, Louisiana. The Society for Pediatric Radiology 36 pp., 1982.

Nine patients with histologically proven Burkitt's lymphoma were examined by ultrasound over a 22-month period. We present these patients to emphasize the usefulness of state of the art ultrasonic imaging in the initial work-up evaluation of complications, and response to therapy. The patients ranged from 3 1/2 to 12 years (mean 7 1/3 years) with a male predominance of 8:1. Eight of the 9 had primary abdominal disease localized on ultrasound where it was found in the mesentery and local nodes, diffuse throughout the abdomen and retroperitoneum or involving the kidneys only. One patient had a primary intraspinal-intramedullary Burkitt's tumor involving the lower spinal cord without clinical or ultrasonic evidence of abdominal disease. Both high resolution B-mode and real time/sector ultrasound were used in the majority of patients. Conventional radiographic studies including excretory urography, contrast enemas and cystography provided some additional information or confirmation. At presentation, all masses found were large and in all but one involved the mesentery to some extent. Our results indicate some interesting differences from previous series using sonographic imaging with respect to echogenicity, incidence of effusions (35%) and ascites (20%), peri-aortic adenopathy (35%), and renal involvement (65%). Six of the 8 showed complex mixed hyperechoic and hypoechoic solid tumors, whereas only 2 showed the homogenous solid hypoechoic features previously reported to be seen with Burkitt's and indistinguishable from other lymphomas. Renal involvement was due to metabolic-urate nephropathy (three), primary tumor (one), and obstructive uropathy (two). (no Refs)

40. DECREASED THERAPY IN CHILDHOOD HODGKIN'S DISEASE (HD) (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-620 1982

In order to decrease undesirable side-effects of combined modality therapy in patients with HD and to maintain the 80% continuous complete remission in (CCR) rate of an earlier trial at St Jude, we elected to decrease the radiation therapy (RT) dose to 2000 rads, keeping ports and chemotherapy (CT) unchanged. Stage IA and IIA patients with small or no mediastinal mass were excluded from this analysis. From February 1979 to October 1981, 31 patients were treated. The 18 boys and 13 girls ranged in age from 3-19 y (median 13 y) and all but 2 had staging laparotomy. The distribution of patients by stage was: IIA (2), IIB (6), IIIA (13), IIIB (6), IVB (2). Four Stage II patients had chest wall invasion. Eight of the 19 Stage III patients had HD in lower paraortic nodes and 5 others had large mediastinal masses. Tissue types were nodular sclerosing (25), lymphocyte predominant (2), mixed cellularity (4). All patients were irradiated with a 4 MEV linear accelerator in 150 rad fractions, 750 rad/week via anterior/posterior opposed fields to a total of 2000 rad mid-plan dose. All received a mantle port. Stage II and Stage III patients with only spleen and splenic hilar disease received standard para-aortic fields. Other Stage III patients received a standard 'inverted Y' port. CT was vincristine 1.0 mg/m2 IV weekly, cyclophosphamide 100 mg/m2 IV weekly, and procarbazine 100 mg/m2 po daily x 21 days every 4 months for 12 or 18 months depending on the presence of B symptoms. Thirty of the 31 patients achieved and remain in CCR from 1 to 31 months (median 15 months) from diagnosis. Thirteen patients developed herpes zoster. Acute side-effects such as weight loss or cytopenias have been minimal. (no Refs)

41. THE DURATION OF CHEMOTHERAPY FOR CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL): A RANDOMIZED STUDY OF 316 PATIENTS (MEETING ABSTRACT)

Nesbit M, Sather HN, Robison LL, Ortega JA, Donaldson M, Hammond D
Childrens Cancer Study Group, Los Angeles, CA, 90031
Proc Am Soc Clin Oncol; 1:C-480 1982

The question of when to discontinue chemotherapy after prolonged complete clinical remission (CCR) has become increasingly more important now that approximately 60% of children with ALL survive 5 years. A total of 316 patients were randomly assigned either to discontinue maintenance therapy at 3 years (156) or continue their maintenance therapy for a total of 5 years (160). The median follow up from the time of randomization is 52 months. In the group of patients who received 3 years of maintenance therapy 35 events occurred; 22 bone marrow, 2 isolated central nervous system (CNS), 11 isolated testicular. Ten patients have subsequently died. In the group of patients who received 5 years of therapy 26 events occurred; 12 bone marrow, 6 CNS, 5 testicular and 3 deaths in remission. Twelve of the relapse patients have died. There are no statistically significant differences between 3 or 5 years of therapy for marrow relapse, CNS relapse, survival, testicular relapse, or first event. The proportion of patients experiencing a marrow relapse as twice as high in males as compared to females. Of the 87 males who discontinued therapy at 3 years, 15 have experienced a bone marrow relapse as compared to 8 marrow relapses in the 84 males treated for 5 years. The 3 patients who died in remission were all females receiving therapy. The proportion of patients remaining in CCR, 5 years from randomization, who received either 3 or 5 years of maintenance chemotherapy is 85% and 81% respectively. (no Refs)

42. HIGH CYTOXAN-HIGH METHOTREXATE (MTX) THERAPY FOR BURKITT'S LYMPHOMA: A THERAPEUTIC MODEL FOR STAGE III AND IV NON-LYMPHOBLASTIC LYMPHOMA OF CHILDHOOD (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-613 1982

Two institutions independently developed similar high dose Cytoxan (CYT), high dose MTX regimens with coordinated intrathecal (IT)-intravenous (IV) therapy for Burkitt's lymphoma. Both programs were initiated with Oncovin, prednisone, high doses of CYT, and IT chemoprophylaxis. In the M D Anderson Hospital (MDAH) program CYT and MTX with citrovorum factor (CF) were given alternately through consolidation; MTX 200 mg/kg, a 6 hr infusion followed by CF, was given at 6 wk intervals throughout maintenance. IT MTX preceded the MTX infusion by 24 hr; therapeutic cerebrospinal fluid levels persisted for 60 hr. Therapy was completed in 54 wk. The Roswell Park Memorial Institute (RPMI) regimen was similar but included 2 additional doses of CYT. The coordination point for IT-IV MTX was mid-IV MTX infusion. Among MDAH patients (50% with Stage III or IV disease)

survival with no disease was attained by 13/18; among RPMI patients (all with Stage III or IV disease) survival with no disease was achieved by 5/9. One MDAH patient died of sepsis and 1 of measles; otherwise toxicity was acceptable. The 2 additional doses of CYT in the RPMI regimen resulted in pancytopenia in all and hemorrhagic cystitis in 3/9. Features of both of these effective regimens were combined in a new front-line protocol for treatment of Pediatric Oncology Group patients with Stage III and IV non-lymphoblastic lymphoma. The B-cell lineage of the tumors under consideration is a logical basis for uniformity of treatment approach. (no Refs)

43. IMPROVED PROGNOSIS FOR CHILDREN WITH ADVANCED NON-HODGKIN'S LYMPHOMA (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-630 1982

Children with advanced non-Hodgkin's lymphoma (NHL) have a high risk of relapse. This report describes our experience with 21 consecutive children with Murphy Stage III-IV NHL treated at Stanford since 1975. There were 13 males and 8 females, age 3-1/2 to 16 years (median 11-1/2). Histologic classification was: lymphoblastic (14), Burkitt (4) and large cell (3). Primary sites included mediastinum (11), abdomen (4), peripheral nodes (4), multiple bones (1), and ribs and pleura (1). Two patients presented with bone marrow (BM) involvement and 1 with BM and central nervous system (CNS) involvement. Induction therapy consists of 3 cycles of Cyclophosphamide (CTX), Adriamycin, Vincristine and Prednisone (CHOP) followed by CNS prophylaxis with cranial irradiation and intrathecal Methotrexate (MTX). Maintenance therapy consists of 3 drug combinations given in rotation for 2 years: (1) Cytosine Arabinoside and 6-Thioguanine, (2) VM-26 and MTX, and (3) CHOP. A fourth drug combination (CCNU (lomustine) and CTX) included in the treatment of the first 8 patients was omitted subsequently because of excessive toxicity. All 21 patients entered complete remission. The median followup is 40 months. There have been 4 relapses, 4 in the BM and 1 in the CNS. By Kaplan-Meier analysis, an estimated 75.8% of patients remain in continuous complete remission at 4 years. Thirteen patients have completed therapy. One of the relapses occurred very late (at 63 months). At 78 months, the actuarial disease-free survival is 63.1%. Only 4 patients received therapeutic irradiation to primary sites (1500-4200 rad). (no Refs)

44. COMPARISON OF INTERMEDIATE DOSE METHOTREXATE (IDM) WITH CRANIAL IRRADIATION (CRT) IN ACUTE LYMPHOCYTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-504 1982

In CALGB 7611, children to age 20 with newly diagnosed ALL were induced into complete remission (CR) with prednisone (PRED), vincristine (VCR) and L-asparaginase (L-ASP) and then randomized to receive IDM (500 mg/m2 x 3) at 3 weekly intervals or CRT (2400 r) as central nervous system (CNS) prophylaxis. Both groups also received 6 doses of intrathecal methotrexate (IT MTX). Patients were then maintained with oral, daily 6-mercaptopurine, weekly methotrexate and periodic pulses of PRED and VCR for 3 years. Following 3 years of CR providing the bone marrow (BM), cerebrospinal fluid and testicular (T) biopsies were negative, patients were randomized to 'end intensification' or not, which consisted of VCR, PRED, L-ASP and IT MTX. Children were classified at presentation as: standard risk (SR) if they were between the ages of 2 and 7 years and if the WBC was less than 30,000/mm3; or increased risk (IR) if the age was less than 2 or greater than 7 years or WBC greater than 30,000/mm3. Six hundred and thirty-four patients were entered on the study and 593 were evaluable. Of these, 541 entered CR (91%). The median follow-up time has been updated to 3 years. Four hundred and ninety-five patients were evaluable for the sanctuary or intensification phase. In SR patients, IDM was statistically superior to CRT in preventing systemic relapse, whereas CRT within the confines of this study design was superior in preventing CNS relapse. IDM was also superior in preventing T relapse. (no Refs)

45. PHARMACOKINETICS OF INTERMEDIATE-DOSE METHOTREXATE (IDM) IN CHILDREN WITH LEUKEMIA (MEETING ABSTRACT)

Evans WE, Crom WR, Stewart CF, Hutson PR, Cairnes DA, Rivera G, Bowman WP
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Proc Am Soc Clin Oncol; 1:C-43 1982

IDM (200 mg/m2 IV bolus, followed by 800 mg/m2 IV infusion over 24 hr) is currently being evaluated as a component of chemotherapy regimens for acute lymphocytic leukemia (ALL) in children. Since previous studies from our laboratory have demonstrated a significant correlation between steady-state serum methotrexate (MTX) concentrations (Cp) after IDM and the MTX concentration in cerebrospinal fluid (CSF), a study was conducted to determine the extent of variability in MTX disposition following IDM, and the contribution of systemic, renal, and metabolic clearance to the variability in MTX serum and CSF concentrations. In 69 children with ALL (median age 4 yrs) with normal renal function, systemic clearance average (+/-SD) 92 +/-25 ml/min/m2, ranging from 50-161 ml/min/m2. This interpatient variation in systemic clearance resulted in a 3-fold range in MTX Cp, systemic exposure (CxT) and CSF MTX concentrations. The majority (greater than 65%) of systemic clearance was renal clearance, although 7-OH MTX was measured in high concentrations in all patients, consistent with substantial metabolic clearance (35% of systemic clearance). To further define the source of systemic clearance variability, renal clearance (Clr) was measured in 16 of these patients during the 24 hr IDM infusion and in the two 12 hr intervals immediately post-infusion. Significant intrapatient changes in renal clearance were observed during these three time intervals. To assess the basis for observed interpatient differences during each of these intervals, a step-wise regression model was used to evaluate the influence of selected population variables (age, sex, chromium chloride (CrCl), MTX Cp, urine flow, urine pH, and BSA) on MTX renal clearance. During the IDM infusion, Clr correlated with CrCl and urine pH (p equals 0.01, r2 equals 0.51); during the first 12 hr post-infusion interval Clr correlated with Cp, urine flow and sex (boys greater than girls) (p equals .0002, r2 equals 0.79); and during the second 12 hr post-infusion interval Clr correlated with urine flow, urine pH and BSA (p equals .0002, r2 equals 0.83). This study has identified measurable patient characteristics which influence the disposition IDM. It is conceivable that interpatient variability in IDM disposition can be minimized and efficacy improved by more precisely controlling for these patient variables. (no Refs)

46. CORRELATION OF METHOTREXATE 'FREE' AND TOTAL SERUM CONCENTRATIONS WITH CEREBROSPINAL FLUID METHOTREXATE CONCENTRATIONS (MEETING ABSTRACT)

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Eighty-third Annual Meeting of the American Society for Clinical Pharmacology and Therapeutics, March 17-20, 1982, Lake Buena Vista, Florida. American Society for Clinical Pharmacology and Therapeutics 87 pp., 1982.

Methotrexate (MTX), 200 mg/m2 IV bolus followed by 800 mg/m2 infused over 24 hr with leucovorin rescue, administered periodically after remission induction, is currently being evaluated as a component of therapy for childhood acute lymphocytic leukemia (ALL). Its role in preventing CNS relapse assumes that cytotoxic MTX cerebrospinal fluid (CSF) concentrations are achieved from high serum concentrations, despite poor CSF distribution of intravenous MTX. The present study was undertaken to evaluate the distribution of MTX into CSF with this dosage and schedule and to assess the correlation of CSF MTX concentrations with the total (Ct) and free (Cf) steady-state serum concentration of MTX. Twenty-nine children with ALL were evaluated (median age 4 yr). All had normal renal and hepatic function. Serum albumin concentrations ranged from 2.9 to 4.9 gm/dl. Serum and lumbar CSF samples were obtained at the end of the 24-hr MTX intravenous infusion and assayed for MTX by enzyme immunoassay and high-pressure liquid chromatography. Cf was determined by ultracentrifugation using Amicon CF50A filtration cones. The mean 24-hr Ct was 15.8 +/-7.5 uM and the Cf was 6.5 +/-2.9 uM. The mean 24-hr CSF MTX concentration betwen Ccsf and Ct by linear regression yielded the equation Ccsf equals 0.006 x Ct + 0.17. By linear regression, the correlation between Ccsf and Cf was described by the equation Ccsf equals 0.021 x Cf + 0.13 uM. By stepwise regression analysis, the correlation between Ccsf and Cf was significantly better than the correlation between Ccsf and Ct. These data indicate that Ccsfs achieved by a 24-hr intravenous infusion are subject to substantial interpatient variability and correlate significantly better with the Cfs. (no Refs)

47. PROGNOSTIC SIGNIFICANCE OF MEDIASTINAL MASS IN CHILDHOOD HODGKIN'S DISEASE.

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Cancer Treat Rep; 66(4):961-968 1982

The records of 60 consecutive surgically staged children with newly diagnosed Hodgkin's disease were reviewed to determine the prognostic significance of the presence of a mediastinal mass. Mediastinal mass was present in 38 patients and was more common in (a) females, (b) children greater than 12 yr old, (c) association with nodular sclerosis or lymphocyte depletion histology, (d) those with 'B' symptoms, and (e) the presence of advanced disease stage. The presence of a mediastinal mass was associated with reduced disease-free survival, the effect being more significant with a mediastinum/thoracic ratio greater than 0.33. The presence of a mass, large or small, did not influence overall survival. (Author abstract) (18 Refs)

48. EEGS IN DISEASE-FREE CHILDREN WITH ACUTE LYMPHOCYTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

Cohen ME, Duffner PK, Brecher ML, Diamond LS, Glicksman A, Forman E, Harris M, Jones B, Holland J, Glidewell O, Freeman A

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Proc Am Soc Clin Oncol; 1:C-524 1982

EEGs (Electroencephalogram) were performed on 96 children with ALL who remained continuously disease-free from 1-9 years following the completion of CNS prophylaxis. CNS prophylaxis consisted of 3 regimens: intrathecal methotrexate (IT MTX) x 6, CNS radiation (2400 rads) and IT MTX x 6 and intermediate dose methotrexate (IDM) (500 mg/m2 x 3) +IT MTX x 6. EEGs were graded as normal, paroxysmal, focal slowing, dysrhythmic, lateralizing or multiple abnormalities. All EEGs were read or reviewed by the two EEG coordinators who were blinded to the therapy. Sixteen of 96 EEGs (16.7%) were abnormal. The abnormalities included 'paroxysmal' -50%; 'dysrhythmic' -12.5%; 'focal slowing' -6%; 'lateralizing' -6% and 'multiple' -25%. According to treatment regimens, the percent of abnormal EEGs were IT MTX 6.7%; CNS radiation + IT MTX -9.6%; IDM + IT MTX had 31% abnormal EEGs. Overall, 68% of the abnormal EEGs were found in children treated with IDM + IT MTX. Clin Oncolical seizures were present in 19% of children with abnormal EEGs; all of which were in the IDM + IT MTX group. This data suggests that IDM + IT MTX may be associated with neurotoxicity as manifested by abnormal EEGs. Whether these findings are transient and of no clinical significance, or a prelude to permanent neurological sequelae awaits the outcome of long-term follow-up. (no Refs)

49. ACUTE LYMPHOCYTIC LEUKEMIA (ALL) IN CHILDREN WITH DOWN'S SYNDROME (MEETING ABSTRACT)

Kalwinsky D, Pui CH, Bowman WP

St. Jude Children's Research Hospital, Memphis, TN, 38101

Proc Am Soc Clin Oncol; 1:C-488 1982

Since little is known about the clinical course of ALL in children with Down's Syndrome, we report our experience with 18 such patients treated at this institution in the past 14 years. Initial WBC varied from 700-225,000, age at diagnosis ranged from 1.5-17 yrs and none had a mediastinal mass or CNS leukemia at diagnosis. Associated congenital anomalies included an endocardial cushion defect in 2 patients, a cleft palate and Hirschsprung's disease in one patient each. Sixteen of 18 patients were enrolled on Total Therapy Studies VI-X and received prescribed therapies by protocol. Three of 18 patients died during induction, one from pseudomonas sepsis and 2 from intractable congestive failure associated with severe underlying heart disease. Of 8 patients receiving remission induction therapy including prednisone and asparaginase, 5 developed hyperglycemia and 4 required insulin therapy. CNS therapies included cranial irradiation plus intrathecal methotrexate (IT MTX) or moderate dosage IV MTX plus IT MTX. During CNS therapy, all 13 patients developed MTX induced mucositis, necessitating alteration of IT schedules or leucovorin rescue. One patient receiving moderate dose MTX had delayed plasma clearance on one occasion. Continuation therapies for these patients consisted of 1-3 drug combinations with MTX. Complications in remission included MTX induced mucositis or hematopoietic toxicity in 7 patients, repeated bouts of laryngotracheobronchitis in 6, and recurrent viral pneumonia in 4. One patients developed Hashimoto's thyroiditis and required thyroid hormone. One patient has subsequently devel-

oped acute myelocytic leukemia as a second malignancy 22 mos after cessation of therapy for ALL. Nine of 15 patients who achieved remission remain in complete continuous remission from 6 + to 120 + months (median 23 + months). (no Refs)

50. CYCLIC NUCLEOTIDES IN MONONCLEAR CELLS ISOLATED FROM BONE MARROW OF CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

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Fed Proc; 41(3):1413 1982

As a part of our continuing studies on the participation by cyclic nucleotide - related systems in the proliferative behavior of leukemic cells we have assayed the intracellular concentrations of both adenosine 3':5' monophosphate (cAMP) and guanosine 3':5' monophosphate (cGMP) in isolated mononuclear bone marrow cells during short - term incubations. Additions of sodium nitroprusside resulted in large increases of cGMP concentration and in much smaller increases of cAMP; 1-methyl-3-isobutylxanthine increased equally concentrations of both nucleotides. Both isoproterenol and norepinephrine increased concentrations of cAMP in cells isolated from the patients undergoing a remission of ALL; serotonin showed a stimulatory effect on the guanylate cyclase activity. Hydrocortisone depressed levels of both cyclic nucleotides. The basal levels of cyclic nuceotides were different in cells isolated from patients at diagnosis and those isolated 2-4 weeks after initiation of therapy. Moreover the response to hormones and drugs changed significantly during the remission. Parallel longer - term suspension cultures indicate that there may be a correlation between the intracellular concentrations of cyclic nucleotides and the cell proliferation rates which could be useful in evaluation of ALL patients. (no Refs)

51. CYCLIC COMBINATION CHEMOTHERAPY FOR RECURRENT CHILDHOOD LYMPHOCYTIC LEUKEMIA (ALL) AFTER ELECTIVE CESSATION OF THERAPY (MEETING ABSTRACT)

Rivera G, Bowman P, Ochs J, Abromowitch M, Pui CH
St. Jude Children's Research Hospital, Memphis, TN, 38101
Proc Am Soc Clin Oncol; 1:C-489 1982

Retreatment of children with ALL in marrow relapse following cessation of therapy has conventionally followed the initial therapeutic regimen. In a recent effort to improve therapy for such patients, we assessed the efficacy of cyclic combination chemotherapy, featuring a shorter but more intensive continuation phase. Remission induction therapy consisted of prednisone, vincristine and adriamycin (4 wk), and continuation therapy included mercaptopurine + methotrexate (6 wk) alternating with vincristine + cyclophosphamide (6 wk) with intervening reinforcement cycles of prednisone + adriamycin (1 wk) for 18 mo. All children received a final intensification phase of therapy with the same agents used for induction (4 wks). IT methotrexate, weekly x4, was used as CNS prophylaxis during remission induction and every 6 wk during remission. Nineteen of 20 patients attained new marrow remissions with good tolerance of chemotherapy. Only 4 relapses have occurred, 2 marrow and 2 CNS. The remaining 15 (.75) children are in continuous second remission for 9+ to 25+ mo; thus far, 7 (.35) have been taken off therapy again. In addition, 2 patients relapsing after cessation of therapy the second time were retreated with this regimen, and are again off therapy in third complete remissions for 24+ mo. This outcome is superior to results of earlier trials and demonstrates the cyclic systemic combination chemotherapy with intrathecal CNS prophylaxis can secure prolonged second marrow remissions in patients with ALL who relapse off therapy. (1 Ref)

52. INITIAL THERAPY WITH VM-26 PLUS ARA-C FOR POOR PROGNOSIS ACUTE LYMPHOCYTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

Dahl G, Kalwinsky D, McCallister J, Abromowitch M, Rivera G
St. Jude Children's Research Hospital, Memphis, TN, 38101
Proc Am Soc Clin Oncol; 1:C-490 1982

This study was designed to determine whether administration of VM-26 plus Ara-C (cytosine arabinoside) prior to and following standard induction therapy would increase the frequency and duration of remission in children with poor prognosis ALL. Patients eligible for this protocol had one or more of the following initial features: WBC greater than or equal to 100,000, E-rosette + lymphoblasts, a mediastinal mass, central nervous system (CNS) leukemia. In our past experience at St Jude, patients with these clinical features had only brief complete remissions (CR) (median: 7 months) with 70% relapsing by one year and 20% in continuous CR greater than 2 years. The major objective of the study was to compare this therapy with our most recent historical experience with respect to proportion of patients in continuous CR at one year. Patients were treated with an intensive 42 day induction including VM-26, 165 mg/m2 IV, and Ara-C, 300 mg/m2 IV alone given twice a week for four doses preceeding a conventional 28 day induction course including prednisone, vincristine and asparaginase. Continuation therapy consisted of 30 months of daily 6 MP (6-mercaptopurine) and weekly methotrexate (MTX). In addition, patients received 5 two-week pulses of VM-26 and Ara-C at intervals of every 10 weeks during the first year. Preventive CNS therapy with intrathecal (IT) MTX, 12 mg/m2, was given x 5 during the induction period and prior to every VM-26 and Ara-C pulse. Cranial irradiation with 2,400 rads was delayed until one year of CR. From May, 1979 to November, 1981, 46 children, ages 3 months to 19 years (median: 10 years), entered on study. Features at diagnosis included WBC greater than or equal to 100,000 (25), mediastinal mass (24), E+ lymphoblasts (13) and CNS leukemia (10). Two had testicular involvement at diagnosis and 2 had the Philadelphia chromosome. Forty children are currently evaluable for response to treatment, 33 (83%) achieved CR and 7 (17%) died during induction therapy. Ten (33%) of the children have relapsed at 3 to 12 months (8 marrow, 2 CNS). (no Refs)

53. VM26 THERAPY IN CHILDREN WITH DRUG-REFRACTORY LYMPHOCYTIC LEUKEMIA.

Rivera G, Dahl GV, Murphy SB, Bowman WP, Aur RJ, Thomas, Avery L, Simone JV
St. Jude Children's Res. Hosp., 332 N. Lauderdale, P.O. Box 318, Memphis, TN, 38101
Cancer Chemother Pharmacol; 7(2/3):169-172 1982

The combination of VM26 and cytosine arabinoside (ara-C) was studied in Phase I and II trials in patients with drug refractory lymphocytic leukemias. A drug regimen consisting of five increasing dosages of VM26 combined with a constant ara-C dosage was used in treatment of 33 children with acute lymphoblastic leukemia (ALL) and multiple hematologic relapses; 10/33 patients achieved remission but an optimal dosage of VM26 in combination with ara-C was not established. Since the effectiveness of VM26 is dosage-dependent, the drugs

should be used at the maximally tolerated dosage. The effect of VM26 and ara-C was also studied in 26 children in second remission, which is generally short lived. Treatment with VM26 [165 mg/square meter(m2)] and ara-C (300 mg/m2) over 2 wk resulted in prolonged second remission (7 mo vs 3 mo in controls). Using a similar dosage schedule, a complete remission rate of 64% was found in 14 patients who were initial induction failures. A drug synergism study of VM26, prednisone and vincristine in 53 patients with refractory ALL showed 17 children attaining complete remission. These results suggest that clinical resistance to a drug may be overcome by adding an effective new drug with a different spectrum of antitumor activity. (18 Refs)

54. DETECTION OF MINIMAL INFILTRATES IN TESTICULAR BIOPSIES OF BOYS WITH ACUTE LYMPHOBLASTIC LEUKEMIA (MEETING ABSTRACT)

Hargreaves H, Hawkins H
Emory University, Atlanta, GA, Byrnes, R.
71st Annual Meeting of the International Academy of Pathology (United States-Canadian Division), March 1-5, 1982, Boston, Massachusetts. International Academy of Pathology 95 pp., 1982.

The need for better understanding of the biology of testicular involvement in boys with acute lymphoblastic leukemia (ALL) has led us to develop improved methods for accurate diagnosis of early leukemic infiltrates. We have studied bilateral testicular biopsies from 28 boys, 1 to 17 years of age, at the time of initial diagnosis of ALL. In only one case was the leukemic infiltrate extensive and diffuse. In five others, small clusters of lymphoblasts were recognized focally widening the interstitium. The biopsies showed no leukemia in 14 cases; however, in the remaining eight, lymphoblastic infiltration was doubtful. Interpretation of testicular biopsies of young children is difficult. Problems encountered were the small size of biopsy, cellularity of the interstitium, ease with which the tissue was crushed, and the distinction of intravascular from extravascular blasts. Thin (4 um) well-stained sections of bilateral biopsies at least 1 cu mm were necessary for adequate evaluation. Lymphoblasts were identified by their pleomorphism, tendency to cluster, characteristic chromatin pattern, and thin rim of amphophilic cytoplasm. A minimal lymphoblastic infiltrate was defined as at least one interstitial cluster of several blasts independently agreed upon by the three observers. Plastic-embedded sections were available in six of the questionable cases. Lymphoblastic infiltrates were present in three cases and considerably more extensive in two than had been initially appreciated. In the other three cases, only stromal cells were found with rare isolated lymphoblasts. (no Refs)

55. CHROMOSOMES AS A PROGNOSTIC FACTOR (PF) IN CHILDREN AND ADOLESCENTS WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

Grossi M, Kowalczyk J, Suh O, Minowada J, Brecher ML, Green DM, Freeman AI, Sandberg A
Roswell Park Memorial Institute, Buffalo, NY, 14263
Proc Am Soc Clin Oncol; 1:C-527 1982

The importance of chromosome findings as a PF in ALL was studied by statistical analysis among 42 patients diagnosed between 1970 and 1979. All patients received the same induction therapy. For the sanctuary phase, 26 patients received intermediate dose methotrexate (IDM) (500 mg/m2 x 3); 11 patients received IDM x 3 followed by high dose methotrexate (1500 mg/m2 x 3); 5 other patients received cranial irradiation (3) or cytoxan (2). All patients had the same maintenance therapy except for those who received cytoxan. Known PF such as age, initial WBC, platelets, hemoglobin, bone marrow status on day 28 of induction therapy, liver size, spleen size, node size, FAB morphological classification and cell surface markers were compared against chromosomal findings that include normal chromosomes (NN), abnormal chromosomes (AA), normal/abnormal chromosomes (N/A), hyperdiploid (greater than 50), hyperdiploid (47-50), hypodiploid (45-36), hypodiploid (less than 36), pseudodiploid, normal number (46), translocations, deletions and markers. There were no patients with Philadelphia chromosome positive. No relation was found when known PF were compared with chromosomal findings. Those factors which influenced relapse-free survival included: (a) age 24 months to 120 months vs greater than 120 months (b) hemoglobin less than 12 gm vs greater than 12 gm (c) initial WBC less than 20,000 vs greater than 100,000 and (d) failure to achieve bone marrow remission at day 28. No differences in relapse-free survival were found among the different chromosome groups. (no Refs)

56. THE SIGNIFICANCE OF NON-HODGKIN'S LYMPHOMA OF THE SKIN IN CHILDREN (MEETING ABSTRACT)

Jereb B, Nisce LZ, Filippa D, Wollner N
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Proc Am Soc Clin Oncol; 1:C-633 1982

Seven patients aged 6-16 years with Non-Hodgkin's lymphoma (NHL) involving the skin were seen at Radiation Therapy Department at MSKCC between 1973 and 1981. Six patients presented with skin nodules. The disease was localized to the skin in 2, other organ involvement was noted in 3 and one patient had the diagnosis of disseminated NHL made only at autopsy. In the 7th patient the primary site was epidural space and the recurrence in the skin. One patient had no treatment for NHL. Six patients had total skin electron beam therapy (TSEB) and multidrug chemotherapy according to the LSA2-L2 (cyclphosphamide + radiation) protocol; 3 at initial treatment and 3 for recurrence. The same TSEB technique was used as previously described for mycosis fungoides and 400 rads were given once per week 4 times. Of the 3 patients who had TSEB initially, 2 are alive and well, one more than 5 years and one is still on treatment. One patient died in renal failure while on initial treatment. Of the 3 patients who had TSEB for recurrence one died from varicella without tumor while on treatment for recurrence, one died of disseminated CNS disease and one is still on chemotherapy. Skin involvement with NHL in children either as a primary site or secondary manifestation is a rare condition with very poor prognosis. (no Refs)

57. NATURAL KILLING (NK) OF K56 ERYTHROLEUKEMIA CELLS IN HODGKIN'S DISEASE PATIENTS (MEETING ABSTRACT)

Kamiya H, Lange B, Starr S
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Proc Am Soc Clin Oncol; 1:C-614 1982

Peripheral blood mononuclear cells from 25 children and adolescents with Hodgkin's disease (median age, 14 years) were tested for their spontaneous ability to kill (NK) erythroleukemia target cells of the K562 line. NK activity was measured by release of Cr51 after 3 hr in culture at an effector to target ratio of 25:1. NK activity of 6 of 9 patients receiving chemotherapy or irradiation within the previous 2 months was

lower than that of 42 healthy age-matched controls. Three patients receiving therapy and 8 who had discontinued therapy showed normal NK activity. NK activity of 5 patients who had discontinued therapy was higher than normal. These preliminary results suggest that cytotoxic therapy inhibits NK activity, and cessation of therapy is associated with a rebound to normal or supranormal levels of NK in Hodgkin's disease patients. (no Refs)

58. INTERGROUP HODGKIN'S DISEASE IN CHILDREN STUDY OF STAGES I AND II: A PRELIMINARY REPORT.

Sullivan MP, Fuller LM, Chen T, Fisher R, Fryer C, Gehan E, Gilchrist GS, Hays D, Hanson W, Heller R, Higgins G, Jenkin D, Kung F, Sheehan W, Tefft M, Ternberg J, Wharam M
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Cancer Treat Rep; 66(4):937-947 1982

The intergroup study of involved-field (IF) radiotherapy, IF radiotherapy plus mechlorethamine, vincristine, prednisone and procarbazine (MOPP) chemotherapy, and extended-field (EF) radiotherapy for treatment of Hodgkin's disease in children has assessed 305 patients. Of these, 279 were 'not ineligible' (no immediate cause for disqualification). Among 223 randomized patients, 144 were evaluable, 131 had documentation of complete or partial remission, 20 of the remitters relapsed, and 2 died. Among 62 nonrandomized patients with favorable presentations (unilateral upper neck, unilateral inguinal, or massive mediastinal disease), 29 had documented remission, 2 relapsed, and none died. Length of initial disease control (LIDC) was used to measure duration of response. LIDC was best in patients given IF plus MOPP, and 95% are disease free. EF was better than IF radiotherapy ($p = 0.004$). Of the disease characteristics prognostic for response (stage, histologic subtype, and presence of symptoms), only the last factor had a statistically significant effect on LIDC ($p = 0.004$). Ninety-six percent of the patients survive. Using criteria developed by the committee, 23% of the staging procedures reviewed were nonevaluable and 28% of the radiotherapy treatments were nonevaluable. The necessity for criteria for evaluation of staging and treatment is certain. Length of follow-up is too short for correlations of treatment with significant late effects and for relevant therapeutic recommendations. (Author abstract) (10 Refs)

59. SURVIVAL FOLLOWING TESTICULAR RELAPSE IN ACUTE LYMPHOCYTIC LEUKEMIA (ALL): THE INFLUENCE OF INITIAL REMISSION DURATION (MEETING ABSTRACT)

Bowman WP, Aur RJ, Hustu HO, Rivera G
St. Jude Children's Research Hospital, Memphis, TN, 38101
Proc Am Soc Clin Oncol; 1:C-492 1982

From a series of 521 boys with ALL admitted to Total Therapy Studies I-IX, 24 were identified who had symptomatic testicular relapse without simultaneous marrow involvement. Twelve occurred during continuation therapy with mercaptopurine and methotrexate and 12 after elective cessation of treatment. Differences were noted between these 2 groups with respect to initial clinical features and outcome. The median time to testicular relapse in these patients was 11 months and involvement was bilateral in 11. Treatment consisted of irradiation, with 5 also receiving a prednisone vincristine reinduction. Bone marrow relapse ensued in 10 patients after a median time of 3 months and all 10 have died of their disease. Of the 2 survivors, one has had 3 CNS relapses and 1 remains in continuous remission (CR), off all therapy since 1968. This was the patient to have the longest initial remission prior to testicular relapse. In contrast, of 12 patients, experiencing testicular recurrence after cessation of therapy, none had extramedullary involvement at diagnosis. The median time to testicular relapse was 46 months and bilateral involvement was present in only 4. Treatment consisted of irradiation, reinduction chemotherapy and 2 years of continuation therapy similar to that used initially. Two patients developed marrow relapse at 8 and 9 months and both have died. Ten survive in CR from 14 months to 7 years following testicular relapse, 9 of whom are again off all therapy for 1-5 years. Since 1978, subclinical testicular leukemia has been found in 7 of 70 boys undergoing elective biopsy after 30 months of continuous complete remission. Five of these 7 remain in CR for a median duration of 20 months following irradiation and an additional year of chemotherapy. In conclusion, there are 2 forms of testicular relapse in ALL. (no Refs)

60. HEIGHT AND GROWTH OF CHILDREN TREATED FOR ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

Rogers P, Gosser J, Sather H, Nesbit M, Ortega J, Hammond D
Department of Pediatrics, University of British Columbia, Vancouver, British Columbia, Canada
Proc Am Soc Clin Oncol; 1:C-505 1982

The growth pattern of children with ALL entered on Regimen 3 (standard therapy) and 4 (no cranial radiation) of CCG-101 study were retrospectively evaluated. Statistical comparisons were made at diagnosis and 5 years on study, between the two Regimens, sex, age and WBC at diagnosis, radiation schedules, and compared to normal controls as indicated by National Center for Health Statistics Growth Curves. Of 425 children with adequate height measurements at diagnosis there was no significant difference from the height of normal children. The standarized height of 49 children surviving 5 years on Regimen 3 showed a significant fall-off of growth from diagnosis and when converted into a hypothetical boy age 6 at diagnosis the difference was a net average loss of 2.4 cm of expected height. Growth for both girls and boys was slower than normal during 5 years on study. The 2-3 year old age group at diagnosis remained at the same percentile after 5 years, 4-6 year olds dropped an average of 20 percentile points and the 7-12 year olds 24 percentile points of standardized normal growth. At 2 years on study Regimen 4 patients prior to recall for cranial radiation showed no significant loss in relative height, with an average loss of 3 percentile points compared to 11 percentile points for Regimen 3. Patients radiated with greater than 160 rads per fraction showed a decrease in height at a significantly higher rate than those irradiated with less than 160 rads per fraction. (no Refs)

61. LOCAL VERSUS SYSTEMIC THERAPY AFTER ISOLATED TESTICULAR RELAPSE (TR) IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) (MEETING ABSTRACT)

Miller DR, Nesbit M, Sather H, Hammond D
Memorial Sloan-Kettering Cancer Center, New York, NY, 10021
Proc Am Soc Clin Oncol; 1:C-514 1982

Disease-free survival (DFS) after bone marrow (BM) relapse during therapy of ALL is dismal despite intensive retrieval therapy. Children sustaining isolated overt extramedullary relapse (EMR)-either TR or CNS-while on CCG 141 had a poor prognosis with median survival of 19 and 31 mos, respectively. Optimal local and systemic reinduction/maintenance therapy

for maximal DFS remains to be determined as less than 40% of children are alive 3 years or more after EMR. Hematologic remission (HR) and survival after TR were compared in 31 boys treated on 2 CCSG studies. In CCG 101/143, 7 boys received local therapy, radiation (XRT) and/or surgery and continued maintenance for 3 more years (Group 1). In CCG 141 TR in 24 boys was treated with local XRT, systemic reinduction, CNS prophylaxis and 3 more years of maintenance therapy (Group 2). Median time to BM relapse after TR in Groups 1 and 2 was 3-4 mos and 9-11 mos, respectively. In Group 2, 7/24 are in DFS after TR, and 5/24 are in HR 22-41 mos after TR, of whom 1 had CNS relapse at 13 mos. Only 1/7 in Group 1 was in CCR. Survival was significantly better in Group 2 than in Group 1, but partially related to retrieval therapy used after BM relapse. The longest survival after BM relapse in Group 1 was 7 mos; 8/17 in Group 2 survived for greater than 7 mos. Five additional patients on CCG 101/143 were treated per Group 2; their survival was significantly better than Group 1 patients. (no Refs)

62. CENTRAL NERVOUS SYSTEM (CNS) PROPHYLAXIS WITH INTERMITTENT INTRATHECAL (IT) METHOTREXATE (MTX) AND FRACTIONAL IRRADIATION (IMFRA) IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA - EVALUATION OF TOXICITY FROM IMFRA (MEETING ABSTRACT)

Bhambhani K, Kelly JO, Ravindranath Y, Schultz G
Children's Hospital of Michigan, Detroit, MI, 48201
Proc Am Soc Clin Oncol; 1:C-484 1982

Toxicity directly attributable to IMFRA CNS prophylaxis was evaluated in 113 of evaluable children with ALL treated with IMFRA and a repetitive reinduction protocol. The IMFRA CNS prophylaxis consisted of single injection of IT MTX followed by radiation to the CNS -100 R in air to each side of skull and to the spine. IMFRA was started at the time of the first remission marrow and repeated at 10 week intervals. The radiation portion of IMFRA was discontinued at 3 years but IT MTX was continued for the remaining 2 years of systemic therapy. The estimated total absorbed dose to the skull is 2400 R and 1200 R to the spine. Fifty-eight of the 113 patients remain in remission to date. The 5 year actuarial complete remission rate is 56%. Long term CNS toxicity was seen in only 2 patients - both developed seizure disorder during the first year of therapy. Computerized tomography scans were performed in 28 of 42 patients in whom therapy has been discontinued and they were normal including the two patients with seizures. No instances of brain atrophy, ventricular dilatation, mineralizing microangiopathy or white matter hypodensity were seen. Thyroid function studies were performed in 31 patients in whom therapy was discontinued. One patient had compensated hypothyroidism with elevated TSH (thyroid stimulating hormone). (1 Ref)

63. THE CURATIVE POTENTIAL OF CENTRAL NERVOUS SYSTEM (CNS) RELAPSE IN CHILDHOOD ACUTE LYMPHOCYTIC LEUKEMIA (A.L.L.) (MEETING ABSTRACT)

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Proc Am Soc Clin Oncol; 1:C-479 1982

CNS relapse, as first evidence of recurrent leukemia, was studied in 29 children with ALL. Two children with CNS involvement at diagnosis were included. Of the 31 patients (pts) studied, 25 are disease free (1 month to 134 months with a median of 47 months) with 13 off therapy. Initial CNS prophylaxis in 12 pts consisted of three intrathecal (IT) drugs, methotrexate (MTX 15 mg/m2, hydrocortisone (HC) 15 mg/m2 plus cytosine arabinoside (CA) 30 mg/m2. Twelve other pts received cranial radiotherapy (RT), 2400 rad, given dose, plus 5 doses of IT MTX, 15 mg/m2. Five pts, diagnosed before routine CNS prophylaxis, received no prophylaxis. The pt group consisted of 15 boys and 16 girls; 24 pts had initial white blood cell counts less than 10,000/mm3; 20 had platelet counts less than 50,000/mm3. At the time of CNS relapse, 2 pts had simultaneous marrow involvement and one pt had renal involvement with a pelvic mass. All pts received systemic reinduction and intensive maintenance therapy with new drug combinations for 2-3 years following CNS relapse. Treatment of CNS relapse was based on prior therapy and pts age. Twenty-two pts received triple IT therapy (MTX 15 mg/m2, HC 30 mg/m2 + CA 60 mg/m(2)) and 9 others received triple IT priming followed by RT. After therapy for 1st CNS relapse, 10 pts are off therapy in continuous complete 2nd remission. Four pts off therapy more than 4 years are potentially cured. Ten pts continue on therapy disease free. Eleven pts relapsed: 6 CNS, 4 marrow and one CNS + marrow. (no Refs)

64. RADIATION TREATMENT OF PEDIATRIC HODGKIN'S DISEASE: THE PATTERNS OF CARE HODGKIN'S DISEASE OUTCOME STUDY (MEETING ABSTRACT)

Kinzie JJ, Hanks G, Kramer S, MacLean CJ
Wayne State University, Detroit, MI, 48201
Proc Am Soc Clin Oncol; 1:C-629 1982

The Patterns of Care Study (PCS) has conducted outcome surveys on patient records from 130 institutions selected in a random sampling of the United States practice and from 5 facilities specially selected because of their large annual experience in treating Hodgkin's disease. 1973-74 cases were reviewed so that long term follow-up could be attained. Both radiation and combination radiation/chemotherapy cases were reviewed. The PCS survey of 1973-74 radiation cases showed that the radiation therapy outcome of pediatric cases was very good. These differences in outcome between children and adults cannot be explained by differences in histology, work-up or treatment factors. These results are important in light of recent trends away from vigorous staging and/or radiation treatment in the pediatric age range. (no Refs)

65. RADIOGRAPHIC EVALUATION OF RECURRENT HODGKIN'S DISEASE IN CHILDHOOD (MEETING ABSTRACT)

Cohen RA, Parker BR, Donaldson SS, Castellino RA, Kaplan HS
No affiliation given
Eighty-second Annual Meeting of the American Roentgen Ray Society, May 10-14, 1982, New Orleans, Louisiana The American Roentgen Ray Society; :A117 1982

This study was undertaken to determine the value of routine surveillance radiographs in the identification of recurrent Hodgkin's disease in childhood. Between 1961 and 1980, 179 patients aged 15 or less were entered on prospective diagnostic and therapeutic protocols. Serial surveillance chest and abdominal radiographs were obtained. Relapse occurred in 37 patients. Thirty-four separate sites of recurrent disease were identified radiographically in 29 patients, 16 of whom were clinically free of disease. Chest radiographs were positive in 17 patients and abdominal radiographs or reopacification lymphograms were positive in 13 patients. Our results document the

value of routine surveillance radiographs in detecting recurrent Hodgkin's disease in children. (no Refs)

66. ASPARAGINASE INDUCED IMMUNE HEMOLYTIC ANEMIA (MEETING ABSTRACT)

Westman RM, Coates TD, Griep JA
Indiana University School of Medicine, 1100 W. Michigan, Indianapolis, IN, 46223
Proc Am Soc Clin Oncol; 1:C-101 1982

Four children (CHN) with acute lymphocytic leukemia were observed to develop hemolytic anemia in association with asparaginase (ASP) chemotherapy. All CHN had been previously treated with L ASP, had experienced a local or systemic reaction to this agent, and had been switched to Erwinia (E) ASP. Criteria for hemolysis included decreased hematocrit in 3 CHN, elevated reticulocyte count in 4 CHN, low serum haptoglobin in 3 CHN, and evidence for hemolysis on blood smear in 4 CHN. None of the CHN had splenomegaly. Hemolysis often persisted for 1-2 weeks after ASP was discontinued. The direct anti-globulin test (DAT) was negative (NEG) in all CHN, and the indirect antiglobulin test (IDAT) was NEG in 3 of 4 CHN. In the fourth child, the IDAT was positive (POS) at 4 C. Erythrocytes (RBCs) were sensitized by incubation with approximately 174 units of L ASP or 435 units or E ASP for 2 hours at 4 C, room temperature and 37 C. The DAT on RBC's sensitized to L ASP or E ASP was NEG in all CHN. In the presence of L ASP or E ASP sensitized RBC's the IDAT was POS at 4 C in all CHN, but varied from microscopic to 2+ and strongly POS. The IDAT with ASP sensitized RBC's was also POS at room temperature and 37 C in 2 CHN. Employment of monospecific Coomb's reagents with patient serum and L ASP or E ASP sensitized RBC's revealed a more strongly POS anti-complement IDAT than anti-IgG or broad spectrum IDAT in 3 CHN. These observations document that CHN receiving either form of ASP who have previously experienced allergic reactions to the agent, may develop hemolysis. (no Refs)

67. STOMATOCYTOSIS AND ANEMIA DURING CONSOLIDATION CHEMOTHERAPY OF CHILDHOOD ACUTE LEUKEMIA (MEETING ABSTRACT)

Neville AJ, Rand CA, Barr RD, Pai KR
Department of Pediatrics, McMaster University, Hamilton, Ontario, Canada
Proc Am Soc Clin Oncol; 1:C-36 1982

In a group of 23 children with acute leukemia, all but one of whom had entered complete remission, retrospective analysis of hematological profiles demonstrated that administration of consolidation chemotherapy, with a combination of Cytosine Arabinoside (Ara-C) and 6-Thioguanine (TG), was associated with a fall in the erythrocyte concentration in peripheral blood, the rate of which was at least as fast as would have occurred with total marrow ablation and consequent red cell aplasia. Such profound myelosuppression is a most unlikely consequence of the administration of Ara-C by intravenous bolus injection, and it was not evident from serial granulocyte and platelet counts. Thus, the absence of detectable hemorrhage, drug-induced erythrocytotoxicity was suspected, prompting in vitro studies of erythrocytes from children with acute leukemia in remission (12) and normal adults (30). At therapeutic concentrations, Ara-C (9 x 10-6M) and TG (7 x 10-5M), individually and in combination, produced significant stomatocytosis as assessed on glutaraldehyde-fixed preparations of samples from both groups which were adjusted to a standard RBC count (4 x 10(12)/L). By contrast, Vinblastine, a known spherocytogenic agent at supratherapeutic concentration in vitro (10-4M), produced no significant shape change in RBC from normal adults (75) at a therapeutic concentration (1.7 x 10-6M). (no Refs)

68. TREATMENT OF ACUTE MYELOID LEUKAEMIA IN CHILDREN.

Paton CM, Ekert H, Waters KD, Matthews RN, Toogood RG
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Aust NZ J Med; 12(2):143-146 1982

Complete remission was achieved in 11 of 22 children with acute myeloid leukemia using at least two courses of a 24 hr infusion of cytosine arabinoside (Ara-C) 10 mg/kg, followed by push injections of daunorubicin (DNR) 45 mg/m2, and adriamycin (ADR) 45 mg/m2. Consolidation therapy consisted of three courses of Ara-C and 6-thioguanine (Tg) and one course of cyclophosphamide (CPA) and ADR. Central nervous system prophylaxis with intrathecal Ara-C was given in all patients and cranial irradiation in five. Maintenance therapy consisted of 5 day courses of Ara-C and Tg given 4 weekly with immunotherapy (BCG vaccine and subcutaneous leukemic cells) between courses. Median length of first complete remission was 99+ wk, and median survival of all patients was 44 wk. Median survival of remitters was 195+ wk and non-remitters, 28 wk. Two patients developed central nervous system disease, one at presentation and the other 46 wk from presentation. Five patients have ceased therapy and remain in remission from 32 to 142 wk after ceasing treatment. (Author abstract) (16 Refs)

69. ACUTE LYMPHOBLASTIC LEUKEMIA (ALL) AND NON-HODGKIN'S LYMPHOMA (NHL) IN CHILDREN: CURRENT STATUS AND CONTROVERSIES IN PROGNOSIS AND THERAPY AND FUTURE PERSPECTIVES (MEETING ABSTRACT)

Miller DR
Memorial Sloan-Kettering Cancer Center, New York, NY
Am J Clin Oncol; 5(2):144 1982

To date, more intensive induction, consolidation, and maintenance have failed to prolong DFS (disease free survival) in children with a poor prognosis. In West Germany (Berlin-Frankfurt-Muenster protocol) a 70-75% DFS is seen in all patients regardless of initial WBC, suggesting that effective therapy will override prognostic factors. Ultra-high-dose MTX (methotrexate), without cranial XRT (radiation), is also showing promise in patients with poor prognosis. Other issues include the optimal duration of therapy, the role of testicular biopsies, and prophylactic testicular radiation. Recent studies suggest that prognostic factors lose their significance after 2 years of complete continuous remission and that 3 years of maintenance therapy is adequate. Bilateral open-wedge testicular biopsies have identified occult testicular disease in 8-10 males. A unified approach to children with leukemia/lymphoma, a particularly poor prognosis group, utilizing NHL-type therapy may be more effective than conventional ALL therapy. In NHL, survival in locoregional Stage I-II disease and in mediastinal lymphoblastic Stage III disease is greater than 85%. A randomized trial completed by CCSG (Children's Cancer Study Group) comparing LSA2-L2 therapy and COMP (cytoxan, vincristine MTX, prednisone) showed that the less intensive and less toxic COMP regimen was as effective as LSA2-L2. Preliminary results indicate no differences between 6 and 18 months of therapy. The role of LSA2-L2 in

nonlymphoblastic Stage III-IV NHL is controversial. CCG-551 suggests an advantage of COMP therapy plus XRT over a modified LSA2-L2 protocol, but the results in both groups are inferior to those obtained at a single institution. Other controversial issues requiring clinical trials include 1) the role of second-look surgery in unresected intraabdominal, nonlymphoblastic NHL; 2) the role and optimal dose of involved field XRT; 3) CNS prophylaxis in Stage I disease; 4) prognostic significance of histology; and 5) second malignant neoplasms. (no Refs)

70. FREQUENCY OF BURKITT'S LYMPHOMA IN SOUTHERN ARIZONA (MEETING ABSTRACT)

Hatter JJ, Reinecke CA, Grogan TM
University of Arizona, Tucson, AZ, 85724
Proc Am Soc Clin Oncol; 1:C-631 1982

Burkitt's lymphoma occurs with increased frequency in certain parts of Africa. In the US, Burkitt's lymphoma has been reported to be a rare tumor with an incidence of less than 1% of all childhood cancer. More recent advances in the definition of the immunologic and cytochemical characteristics of non-African Burkitt's lymphoma have indicated that some childhood diffuse undifferentiated lymphomas, particularly Lukes-Collins SNC FCC abdominal lymphomas, may be of the Burkitt's variety. The exact incidence of Burkitt's lymphoma in the population of US children is thus presently undefined. Over a 5-1/4 year period 163 newly diagnosed cancer patients less than 18 years were evaluated by the Pediatric Oncology Service at the University of Arizona. Twelve children (7.4%) ages 2-12 years had Burkitt's lymphoma which accounted for 50% of the NHL in this population and was greater than the frequency of Wilms' tumor (4.9%) and neuroblastoma (6.1%). A pathologic phenotype characteristic for Burkitt's lymphoma was established by tissue section and cell suspension immunologic and cytochemical determinations. In four patients where full immunologic studies were performed, the tumors were SIg+ with both heavy-chain and light-chain restriction noted. Nine patients had abdominal tumors, one child had bilateral jaw tumors and two had localized cervical lymphadenopathy. (1 Ref)

71. COMPLICATIONS OF TREATMENT OF HODGKIN'S DISEASE IN CHILDREN.

Donaldson SS, Kaplan HS
Dept. Radiology, Stanford Univ. Medical Center, Stanford, CA, 94305
Cancer Treat Rep; 66(4):977-989 1982

An analysis of complications of therapy requires long-term and frequent followup. Reported here is a review of 179 consecutive children with Hodgkin's disease from Stanford University Medical Center who were seen, treated, and followed over a 20-yr period. Complications of treatment are related to the extent of disease and the aggressiveness of therapy. Severe complications from radiotherapy are associated with high-dose, extended-field treatment in preadolescent children. Severe chemotherapy-associated complications include immunosuppression, sterility, and secondary oncogenesis. As cure rates are increasingly optimistic among children with Hodgkin's disease, successful treatment with minimal morbidity remains our greatest challenge. Therapy programs require continual refinement utilizing assessment of short- and long-term side effects of treatment. (Author abstract) (26 Refs)

72. MALIGNANT HISTIOCYTOSIS. A HISTOLOGICAL AND CYTO-PATHOLOGICAL STUDY OF TWENTY-FIVE CASES IN CHILDREN.

Calliaud JM, Bayle-Weisgerber C, Micheau C, Caillou B, Talbot M, Gerard-Marchant R
Service d'Histopathologie A, Institut Gustave-Roussy, rue Camille Desmoulins, 94800 Villejuif, France
Sem Hop Paris; 58(17):1049-1055 1982

Twenty-five cases of children's malignant histiocytosis from the Pediatric Department of the Institut Gustave-Roussy are presented. The specificity of this disease is defined after its pathologic and cytologic characteristics. Problems and differential diagnosis are reviewed and discussed. A cytochemical study was performed on eight cases; electron microscopy was done on one case; four cases were submitted to autopsy. Through these results, malignant histiocytosis appears to be different from the common malignant lymphomas but the actual histogenesis of the tumor cell remains to be elucidated. (Author abstract) (39 Refs) (In FRE)

OTHER SOLID TUMORS OF CHILDHOOD

73. DIAGNOSIS OF HEMANGIOMAS OF THE JAW AND FACE IN EARLY CHILDHOOD.

Schettler D, Heesen J
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Dtsch Zahnaerztl Z; 37(4):371-374 1982

Diagnosis and treatment of hemangiomas in early childhood (HEC) are discussed; three illustrative cases are presented. HEC in young children are dysontogenetic formations and include simple and cavernous types. Cavernous HEC may occur in the skin, mucosa, muscle, or bone. In many cases HEC regress spontaneously. Surgery is therefore indicated in only a few cases, since it involves loss of normal tissue; radiotherapy is contraindicated because of damage to normal tissues. A 4-mo-old girl was treated for a tuberous hemangioma in the oral floor and parotid area that presented a threat to life by interfering with breathing. The hemangioma was demonstrated by superselective angiography (SSAG). Embolization was not performed because of the smallness of the target vessels and the presence of arteriovenous shunts. The portion of the angioma in the oral floor was removed; the parotid portion regressed. An angioma HEC of the upper lip and nasal root in an 8-mo-old girl regressed spontaneously without treatment. A hemangioma of the left maxilla in a 14-yr-old girl was demonstrated by SSAG. Preoperative embolization to reduce bleeding was followed by surgical resection. Embolization is recommended only for minimizing intraoperative bleeding; treatment of HEC by embolization alone is worthless, since rapid recanalization and formation of arteriovenous shunts leads to complete recurrence. SSAG is the principle means of diagnosis of HEC. (5 Refs) (In GER)

74. TUMORS OF THE STOMACH IN CHILDREN (MEETING ABSTRACT)

Ludwig R, Stromeyer H, Willich E
Department of Pediatric Radiology, Childrens Hospital, University Heidelberg, Heidelberg, W. Germany
Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

Tumors of the stomach occur very seldom during childhood. Main symptoms are intestinal bleeding and secondary anemia. The most important diagnostic technics are radiography, fluoroscopy and gastroscopy. We had the chance to review radiological and clinical data of 15 patients with tumorous changes presenting on radiological examination of the stomach. Among them were 11 cases in whom histological work up revealed real tumors (neurinoma in 2 cases, teratoma, leiomyoma, leiomyosarcoma, retothelsarcoma, carcinoma, hemangioma in one patient each and 3 case of polyps). In 4 patients already the operative intervention showed so-called pseudo-tumors, 2 trichobezoars, a duplication of the stomach, and ectopic tissue of the pancreas. X-ray examinations of these patients will be presented together with leading clinical symptoms. (no Refs)

75. CISPLATIN (DDP), AN EFFECTIVE THERAPY FOR UNRESECTABLE OR RECURRENT HEPATOBLASTOMA (MEETING ABSTRACT)

Champion J, Green AA, Pratt CB
St. Jude Children's Research Hospital, Memphis, TN, 38101
Proc Am Soc Clin Oncol; 1:C-671 1982

Unresectable or recurrent hepatoblastoma (URHB) is almost always fatal with a median survival of 6 months. Of 11 children seen at St. Jude from 1964 to 1979 with URHB 10 died 0.5 to 17 months (median 8 mos) after onset of unresectability. One patient responded to radiation and vincristine sufficiently to allow total resection of tumor. Vincristine (VCR) and 5-FU (5-fluorouracil) had provided the best clinical response with 3 of 9 patients achieving a partial response. Since 1979, 5 additional patients with URHB resistant to VCR, 5-FU, adriamycin and cyclophosphamide received DDP 90 mg/m2 q 3 weeks. All patients had intrahepatic abdominal tumor and 2 had pulmonary involvement. Clinical response was noted in 4 with 1 CR (complete response), 2 PR (partial response), and 1 mixed response (MR). All lung metastases have cleared but to date only 1 patient had complete regression of abdominal tumor. From 3 to 6 courses of DDP have been given with maximal tumor regression observed by the 4th course. One child had progressive disease after 3 courses of DDP. The child achieving MR had no recurrence of pulmonary disease at death 4 months after cessation of therapy. The overall survival time from tumor recurrence or unresectability for these 5 children is 6+, 9, 13+, 14 and 24+ months. Alpha fetoprotein (AFP) serum concentrations were reduced 1000 fold in responders although none returned to normal. Despite extensive disease and prior therapy, all patients tolerated DDP well. Transfusion was required by 2 patients and elevated BUN (blood-urea nitrogen) and creatinine was noted in 2 patients. Tumor response to DDP has increased the survival of previously unresponsive patients. Three patients were rendered tumor free, 2 with additional surgery after partial responses to DDP. (no Refs)

OTHER RELATED CLINICAL STUDIES

76. CT LOCALIZATION OF OCCULT SECRETORY TUMORS IN CHILDREN.

Hecht ST, Brasch RC, Styne DM
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Pediatr Radiol; 12(2):67-71 1982

Three seemingly occult secretory tumors in children (pheochromocytoma, ganglioneuroblastoma and islet cell carcinoma) were localized within the abdomen by computed tomography after other diagnostic imaging procedures had failed. The superb density resolution and tomographic formating of CT images make CT uniquely suited for the demonstration of small abdominal lesions. CT is recommended as a primary imaging modality for secretory tumors in children. (Author abstract) (16 Refs)

77. CT IN CHILDREN WITH NEOPLASTIC RETROPERITONEAL AND PELVIC DISEASE (MEETING ABSTRACT)

Tschaeppeler H
Department of Diagn. Radiology, University Hospitals, Inselspital, Berne, Switzerland
Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

The results of CT (computed tomographic) examinations of 66 children with neoplastic soft tissue disease of the retroperitoneum and pelvis are discussed. There were 26 patients with malignant lymphoma, 13 children with neurogenic tumors, 9 renal neoplasms and 18 primary non-renal and non-neurogenic tumors (malignant ovarian tumors, teratomas, sarcomas). The main purpose of CT investigation was initial staging; about half the patients had follow-up studies. In no patient CT was the first and/or unique examination. As a complementary diagnostic modality it contributed considerably in establishing the local extent of disease (esp neurogenic tumors, sarcoma, malignant lymphoma), in demonstrating metastatic involvement of regional lymph nodes (esp malignant ovarian tumors and teratomas) and in assessing response to treatment or relapse of disease (esp malignant lymphoma). However the series includes few false negative as well as false positive results, whereas only one examination could not be evaluated because of poor technical quality. (no Refs)

78. EXTRAGONADAL ENDODERMAL SINUS TUMORS (EST) IN CHILDREN: A REVIEW OF 25 PATIENTS (MEETING ABSTRACT)

Daneman A, O'Sullivan P, Chan HS, Robey G, Smith C, Martin DJ, Fitz CR
The Hospital for Sick Children, Toronto, Ontario M5G 1X9, Canada
Twenty-fifth Annual Meeting of the Society for Pediatric Radiology, May 7-9, 1982, New Orleans, Louisiana. The Society for Pediatric Radiology 36 pp., 1982.

EST rarely occur in extragonadal sites and the radiographic spectrum of these lesions has not been reported. This paper reviews the clinical and radiographic findings in 25 such patients (3F: 1M, mean age 25 months). In this series the primary lesion occurred in the sacrococcygeal region in 16 patients; vagina-2; anterior mediastinum-2; and 1 case of each: bladder, liver, nasopharynx, pineal and posterior cranial fossa. Plain films usually show a soft tissue mass. Calcification was visible only in the pineal lesion and in one sacrococcygeal tumor following

chemo- and radiotherapy. CT (computed tomography) revealed calcification in a second sacrococcygeal tumor. Sacrococcygeal tumors were well circumscribed lesions on CT and usually had a homogenous density both before and after contrast enhancement. CT showed erosion into the maxillary antrum by the nasopharyngeal tumor. The densely calcified pineal lesion caused aqueduct obstruction with hydrocephalus. The bladder tumor appeared homogenously echogenic on ultrasound and CT showed its attachment to the bladder wall by a broad base. Sacrococcygeal tumors were highly vascular on angiography (4 cases) - head and neck lesions poorly vascular (3 cases). None of the lesions took up technetium pentetic acid during bone scans. Metastatic disease was detected at the time of diagnosis in 13 patients: lung in 8 cases; lymph nodes-5; subarachnoid-1; liver-1; venous-1; bone and extradural-1. (no Refs)

79. THE VALUE OF ULTRASOUND IN ASSESSING NEOPLASTIC DISEASE IN INFANTS AND CHILDREN (MEETING ABSTRACT)

Rosenberg HK
Children's Hospital of Philadelphia, Philadelphia, PA, 19104
Nineteenth Congress of the European Society of Pediatric Radiology, April 22-24, 1982, Prague, Czechoslovakia. European Society of Pediatric Radiology 124 pp., 1982.

In the early years of abdominal ultrasound, its value was primarily in identifying the presence of a mass and its consistency. With the advent and constant improvement of grey scale technology it is now possible to identify the organ of origin, adjacent organs and extent of disease. With the addition of realtime ultrasound, a meticulous demonstration of intraabdominal vessels, ducts, lymph nodes and ascites is possible. We have found ultrasound to be a reliable tool not only in initial diagnosis but in following inoperable patients who are receiving chemotherapy prior to definitive surgery. It is a means of rechecking the postoperative patient as well. Although the abdominal and pelvic examinations are most frequently performed, ultrasound can be used to examine patients with suspected tumors of the brain, neck, chest and peripheral soft tissue. (no Refs)

80. PSEUDO-OBSTRUCTION OF THE INFERIOR VENA CAVA IN PEDIATRIC ABDOMINAL MASSES.

Kadir S, O'Neill JA
Russell H. Morgan Dept. Radiology and Radiological Sciences, Johns Hopkins Medical Inst., Baltimore, MD, 21205
Cardiovasc Intervent Radiol; 5(1):25-29 1982

Results of inferior venacavography (IVC) of 17 children (9 males, 8 females; 4 mo to 10 yr old) with large abdominal masses were evaluated. In nine patients who underwent IVC in the supine position, four exhibited apparent severe narrowing of the lumen, but surgery revealed only extrinsic compression by tumor in two of these patients. The remaining eight patients receiving supine cavagram had apparent occlusion on IVC in five cases; but four of the latter were patent on the decubitus cavagram. Cavagrams of a 4-mo-old girl with a large hepatoblastoma, a 2-yr-old boy with non-Hodgkin's lymphoma, and a 4-yr-old boy with Wilm's tumor illustrate the generally less obstructed appearance of the vena cava in the lateral views. If IVC is conducted only in the supine position, it may give the appearance of obstruction suggesting advanced disease. In the lateral decubitus position, unlike that of the prone and supine, the pressure on the inferior vena cava caused by extrinsic compression is relieved and normal flow is resumed. When occlusion is demonstrated on supine cavagram, attempted confirmation by a repeat study in the lateral decubitus position is recommended. (12 Refs)

81. THE SHARPLAN CO2 SURGICAL LASER IN NEONATAL SURGERY.

Kaplan I
Dept. Plastic and Maxillofacial Surgery, Beilinson Hosp., Tel Aviv, Israel
Ann Plast Surg; 8(5):426-428 1982

The use of the Sharplan CO2 laser in pediatric surgery is illustrated, with three cases as examples. A lymphangioma was successfully removed in one child using the CO2 laser; blood transfusion was not necessary. Neurofibromatous tumors of the buttock that obstructed the anus were effectively excised in an identical twin with minimal blood loss. A child with a sacrococcygeal teratoma was also successfully managed using this technique. (no Refs)

82. THE USE OF IMPLANTATION IN CHILDHOOD TUMORS: THE EXPERIENCE OF CHILDRENS CANCER STUDY GROUP MEMBER INSTITUTIONS (MEETING ABSTRACT)

Stowe SM, Littman P, Wara W, Raney RB, Tefft M
Children's Hospital of Los Angeles, University of Southern California, School of Medicine Los Angeles, CA
Am J Clin Oncol; 5(2):129 1982

Twenty-two patients with malignant tumors have been treated by implantation of radionuclides alone or in combination with external beam therapy and implantation, the remainder with implantation for primary or recurrent tumors at three major member institutions of the Children's Cancer Study Group. Fourteen patients were treated for recurrences. Twelve patients were treated with a combination of external beam therapy alone. Sixteen patients were treated using 192Ir, four patients with permanent 125I implants, one patient with 252Cf, and one patients with 198Au. Fourteen patients had rhabdomyosarcoma at various sites; seven of these patients are alive and well, without evidence of disease, with a minimum of 6 months follow-up. Of the seven patients who died, five had local control. Four patients had brain tumors; one is alive with stable disease 1 year after treatment. The other three have all had progressive disease, but local control at implant site. Two patients with Wilm's tumor were treated with a minimum of 6 months' follow-up. Both of these patients had local control of disease, but died of metastatic disease. One patient with fibrosarcoma was treated but had local failure at 4 months, and one patient with Ewing's sarcoma died of disseminated disease at 3 months with local control. Details of the dosimetry and techniques of implantation will be discussed. Complications will be evaluated. Implantation is a valuable technique in certain pediatric patients, permitting the delivery of high radiation doses to tumors while sparing normal growing tissues. (no Refs)

83. PLATINUM (CDDP) PLUS ETOPOSIDE (VP 16) IN THE TREATMENT OF REFRACTORY SOLID TUMORS OF CHILDREN AND ADOLESCENTS (MEETING ABSTRACT)

Gasparini M, Santoro A, Bellani FF, Rottoli L
Istituto Nazionale Tumori, Milan 20133, Italy
Proc Am Soc Clin Oncol; 1:C-682 1982

CDDP plus VP16 was employed to treat 22 patients failing after conventional chemotherapy. Median age was 13.6 years. Types of tumor were the following: neuroblastoma (NBL) 7, osteosarcoma (OS) 6, Ewing sarcoma (ES) 5, soft tissue sarcoma (STS) 4. Most patients were resistant to a combination of ADM+VCR+CTX+Act D+DTIC (adriamycin + vincris-

tine + cyclophosphamide +/- actinomycin D +/- dacarbazine). The regimen was as follows: CDDP (100 mg/m(2)) was administered in a 2 hr infusion. VP 16 (250 mg/m(2)) was given over 30 minutes beginning 48 hr after CDDP. Appropriate pre and post CDDP hydration without diuretics was utilized and MgSO4 (10 mEq/m(2)) was injected im following CDDP. Cycles were repeated every 4 wk. CR (complete response) plus PR (partial response) occurred in 5/22 (23%). Objective response was seen within the 2nd cycle. Its duration lasted 4, 5, 6, 10, 6+ mo. Toxicity was mild except for nausea and vomiting after CDDP. WBC less than 2,000 occurred in 8 cases, less than 1,000 in 2; thrombocytopenia less than 50,000 in 3; anemia (drop in Hb of greater than 3 g) in 9. Increase of BUN (blood-urea nitrogen) and creatinine was observed in 5. Electrolyte imbalance as well as hypomagnesemia was never documented. Toxicity appeared to be cumulative but not life-threatening. Response rate with this combination is interesting because achieved in highly resistant tumors as pretreated NBL and OS. (no Refs)

84. PULSE VCAD CHEMOTHERAPY: AN INTENSIVE, EFFECTIVE TREATMENT FOR INOPERABLE AND METASTATIC SOLID TUMORS IN CHILDREN AND YOUNG ADULTS (MEETING ABSTRACT)

Wilbur JR, King OY
Children's Cancer Research Institute, San Francisco, CA, 94115
Proc Am Soc Clin Oncol; 1:C-685 1982

Pulse VCAd, an intensive combination of Vincristine 2 mg IV on day 1, Cyclophosphamide 15 mg/kg/d IV x 4 days and Adriamycin 15 mg/m(2)/d x 4 days by IV push or continuous drip on an every four weeks schedule is a highly effective drug combination for achieving complete response (CR) or partial response (PR) in children and young adults with inoperable or metastatic solid tumors including Ewing's sarcoma, soft tissue sarcomas, neuroblastoma and lymphoepithelioma. CR or PR was achieved in 14/15 patients with Ewing's sarcoma, 18/21 patients with soft tissue sarcomas, 1/1 with neuroblastoma, and 2/2 with lymphoepithelioma. Most of the soft tissue sarcoma patients had responses after failing other chemotherapy. Toxicity is significant but manageable. One hundred percent of the patients developed severe pancytopenia, with a 25% risk of fever during severe neutropenia. There have been 2 toxic deaths, one secondary to fungal sepsis, and the other due to an unknown cause in an emaciated patient. Details of therapeutic responses and toxicity will be presented. (no Refs)

85. CIS-PLATINUM (CDDP) OTOTOXICITY IN PEDIATRIC PATIENTS (MEETING ABSTRACT)

Mahoney DH, Weaver T, Steuber CP, Starling KA
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Proc Am Soc Clin Oncol; 1:C-104 1982

Cis-Platinum (cis-diamminedichloroplatinum), a potent anticancer agent, has a number of known side effects including myelosuppression, nausea and vomiting, and nephrotoxicity. Ototoxicity has been reported with CDDP; however, the circumstances of toxicity have not been well-defined. Serial audiometric testing in 13 pediatric patients (pts) receiving CDPP were obtained. Testing was performed with Grayson-Stadler model 1704, with pure tone testing between 250-8000 Hz. Speech threshold and impedance audiometry were also measured. Pts studied included: 7 primary or recurrent brain tumors, 4 neuroblastomas, 1 yolk sac tumor, and 1 hepatoma. All 7 brain tumor pts receiving CDDP developed high-frequency hearing loss (HFHL). Abnormalities were first noted at a total accumulative dose range of 109-320 mg/M2. Five of 7 pts had progressive changes with continuation of therapy; 3 of 7 pts required hearing augmentation. All 4 neuroblastoma pts demonstrated HFHL. Abnormalities were first noted at total accumulative dose ranges of 120-384 mg/M2. Abnormalities were usually milder, although 1 pt required hearing augmentation. Brain tumor and neuroblastoma pts received therapy at 3-4 wk intervals. Two pts (1 yolk sac tumor and 1 hepatoma) receiving CDDP at extended intervals have normal audiometric tests. Ototoxicity appears to be a common complication of CDDP therapy, particularly when the drug is administered at close intervals. (no Refs)

86. TOXICITY OF CYCLIC INTRAVENOUS MELPHALAN (IVM) IN CHILDREN WITH REFRACTORY MALIGNANCIES (MEETING ABSTRACT)

Rohrbaugh TM, Belasco JB, Rosenstock JR
The Children's Cancer Research Center, Philadelphia, PA, 19104
Proc Am Soc Clin Oncol; 1:C-47 1982

IVM 1mg/kg was administered every 3 weeks or as tolerated to 6 patients (pts) with refractory solid tumors and every 3 weeks or as dictated by rising white blood cell (WBC) counts to 5 pts with refractory acute lymphoblastic leukemia (ALL). The solid tumors were: 2 neuroblastomas (NBL), 2 lymphomas, and 2 sarcomas. A complete response (4 mo) defined as disappearance of all identifiable disease occurred in a pt with Hodgkin's disease (HD) who had received prior alkylating agent therapy. A mixed response (2 mo) occurred in a pt with non-Hodgkin's lymphoma whose spleen size was reduced despite progressive disease. Subjective improvement occurred in the pts with NBL without any objective responses. No remissions were attained in the pts with ALL, but a transient decrease in peripheral WBC counts occurred in 2 pts. A reduction in spleen size also occurred in one of these pts. Seven pts experienced mild vomiting, one had moderate vomiting, and 1 had phlebitis during administration. Five pts can be evaluated for hematologic toxicity; three had received extensive prior therapy and had severe hematologic toxicity occurring at 1 to 2 weeks. The two other pts had mild hematologic toxicity. It is concluded that IVM is tolerated well in children with adequate bone marrow reserve at 1mg/kg, seems active against HD, and perhaps against ALL if doses are increased above 1mg/kg and given more frequently than every 3 weeks. (no Refs)

87. THREE METHODS FOR IMPROVED VENOUS ACCESS IN CHILDREN WITH CANCER (MEETING ABSTRACT)

King OY, Wilbur JR
Children's Cancer Research Institute, Pacific Medical Center, San Francisco, CA, 94115
Proc Am Soc Clin Oncol; 1:C-233 1982

Frequent, recurrent administration of sclerosing antineoplastic agents in treatment of children with malignancies often results in chemical phlebitis and poor venous access. The problem is compounded by relatively small lumen of children's veins. A non-randomized study for improved venous access utilizing three methods was started December 1978 to determine effectiveness/failure/risks/complication of each method. Patients who had anticipated or active venous access problems had (a) surgically-created A-V (arteriovenous) fistula, (b) Hickman catheter placement, or (c) Percutaneous subclavian catheter placement. All A-V fistula procedures were done by one surgeon. Subclavian and Hickman catheter placements by another surgeon. A total of sixty procedures were done distribut-

ed equally in each group. Patients received chemotherapeutic agents, blood products, other fluids and medications through the venous access. Catheters were left in place for as long as needed for infusion or blood drawing. They were removed early for documented or suspected infections. Longest follow-up for A is 24+ mos, B, 18+ mos and C, 3+ mos. The Hickman catheter group of patients had higher infection rate but all infections occurred during the period of severe and prolonged (7+ days) granulocytopenia. It is concluded that the use of a surgically created A-V fistula is not a reliable procedure because of the high failure rate. Hickman catheter offers advantages of reliability, patency, and eliminates venipuncture discomfort. The subclavian catheter offers encouraging results for short-term therapy. (no Refs)

88. ADVANCES IN THE TREATMENT OF BONE AND SOFT TISSUE TUMORS IN CHILDREN: RESULTS OF THE INITIAL NATIONAL STUDIES (MEETING ABSTRACT)

Tefft M
Rhode Island Hospital and Brown University, Providence, RI
Am J Clin Oncol; 5(2):146 1982

Seven hundred eighty patients were enrolled on the Intergroup Rhabdomyosarcoma Study (IRS-1). Seventy-three patients with localized disease (Group I) had complete tumor resection and were randomized to receive vincristine (V), dactinomycin (A), and cytoxan (C) with or without radiation (RT) to the local tumor site. There was no significant advantage (NSA) with RT. One hundred thirty patients with microscopic residual disease (Group II) received RT and either VA or VAC. There was NSA between these regimens. One hundred sixteen patients with gross residual disease (Group III) received RT and either VAC or VAC plus Adriamycin (ADR). NSA existed to either regimen. NSA was observed to control local tumor in Group II and III patients by delivering 5000-6000 rad as compared to 4000 rad. Treatment for 264 patients with localized disease on the Intergroup Ewing's Sarcoma Study (IESS) consisted of RT to the primary site and randomization to VAC and ADR (117 patients, TRT-1), VAC (68 patients, TRT-2), or VAC and bilateral pulmonary RT (79 patients, TRT-3). Time to first failure was not significant for TRT-1 versus TRT-3, but was significant for TRT-1 versus TRT-2 and TRT-2 versus TRT-3. Thus, TRT-2 is considered inferior. Fifty patients with pelvic lesions had a shorter disease-free survival than 212 patients with nonpelvic lesions. However, unlike patients with nonpelvic primary lesions, patients with pelvic lesions showed NSA in time to relapse by TRT regimen. Local control of the primary by RT was 90% in the group as a whole but was lower in extremity lesions (87%) and pelvic lesions (78%). (no Refs)

89. EFFECTIVE THERAPY FOR MALIGNANT GERM CELL TUMORS IN CHILDREN: A STUDY BY THE CHILDREN'S CANCER STUDY GROUP (MEETING ABSTRACT)

Ablin A, Ramsay N, Krailo M, Adkins J, Isaacs H, Deutsch M, Hays D, Exelby P, Grosfeld J, Leikin S, Hammond D
Children's Cancer Study Group, Los Angeles, CA, 90031
Proc Am Soc Clin Oncol; 1:C-419 1982

Fifty-four children were registered on a multi-drug program for the treatment of malignant germ cell tumors (MGCT) of all sites except testes and brain. Germinomas and teratomas with immature and embryonal elements were excluded. Initial surgery was followed by chemotherapy with vinblastine, bleomycin, cis-platinum, actinomycin, cytoxan and adriamycin. Second look surgery was performed at 18 weeks and radiation therapy was given only to those patients with residual disease at second look surgery. Chemotherapy was continued for 102 weeks. Of the 30 patients with ovarian MGCT; 20 are evaluable with a median time on study of 11 months. The initial stage of patients with ovarian MGCT was Stage I-4, Stage II-1, Stage III-12, and Stage IV-3. Nineteen (95%) achieved a complete remission (CR) with chemotherapy and/or surgery and 1 a partial remission (PR). Four of 19 patients who achieved a CR developed progressive disease (PD) 2-23 months after achieving CR and 3/4 have died. Of the 24 non-ovarian patients, 18 are evaluable with a median time on study of 10 months. The sites were: sacrococcygeal (9), mediastinal (4), paraspinous (1), abdominal (1), inguinal canal (1), cervix (1), unknown (1). Ten had metastatic disease and 8 had local or regional disease at diagnosis. Ten (56%) achieved CR; 6 (33%) PR and 2 are too early in treatment. Five of 6 patients who were PR developed PD and of those 2 have died. (no Refs)

90. THYROTROPIC AND THYROID FUNCTION AFTER NEOPLASTIC TREATMENT OF INFANTS.

Mussa GC, Bona G, Cordero di Montezemolo L, Silvestro L, Italiano F, Ardissone P
Clinica Pediatrica IV, Universita degli Study di Torino, Torino, Italy
Minerva Pediatr; 34(4):151-159 1982

Forty cancer patients were divided into Group A, consisting of 18 patients (4-16 yr old) who had acute lymphoblastic leukemia (ALL), were treated with chemotherapy (CT) and cranial radiotherapy (RT: 2,400 rad), and were without such treatment for 5-48 mo, and Group B, consisting of 22 patients (1.5-16 yr old) who had other types of oncologic pathology, were treated with noncranial CT and/or RT, and were without such treatment for 5-60 mo. Controls consisted of 15 subjects (5-14 yr old) who were without either pathology or treatment. All patients and controls underwent clinical examination, together with thyroid-stimulating hormone (TSH) T3 and T4 basal tests; the TSH tests were repeated after the subjects were stimulated with thyrotropin-releasing hormone (TRH: 200 ug, iv). Results of the TSH test were within the normal range in the Group A patients; of the Group B patients, six had increased values. The TRH stimulation produced varied results. Twenty-eight of the patients showed changes in thyroid function (TF); most of these were in Group B and represented patients who did not receive cranial RT. The effect of RT, especially CT, on TF should be followed-up. (21 Refs) (In ITA)

91. A PROSPECTIVE RANDOMIZED CLINICAL TRIAL OF TOTAL PARENTERAL NUTRITION IN CHILDREN WITH CANCER.

Donaldson SS, Wesley MN, Ghavimi F, Shils ME, Suskind RM, DeWys WD
Div. Radiation Therapy, Dept. Radiology, Stanford Univ. Medical Center, Stanford, CA, 94305
Med Pediatr Oncol; 10(2):129-139 1982

A prospective randomized clinical trial was undertaken to test the efficacy of total parenteral nutrition (TPN) among previously untreated children receiving abdominal/pelvic irradiation with or without adjuvant chemotherapy who were at risk for wt loss, malnutrition, and complications from treatment. Children were evaluated by wt/height determinations, anthropomorphic measurements, and laboratory studies. TPN was associated with an improved nutritional status during therapy as compared with control patients on ad libitum intake. However, when TPN was discontinued, wt declined and there were no differences among treated and control patients detected at 3-

mo follow-up. Likewise there was no obvious effect from TPN on tolerance to therapy in the adequately nourished child. TPN as initial supportive therapy should be reserved for those children who are malnourished or marginally malnourished at the time of presentation. Close nutritional assessment during treatment is essential since approx 25% of children undergoing abdominal/pelvic radiotherapy with chemotherapy can be expected to become malnourished during an initial course of therapy. (Author abstract) (20 Refs)

92. NURTIENT INTAKE OF CHILDREN WITH CANCER (MEETING ABSTRACT)

van Eys J, Carter P, Carr D, Ramirez I, Coody D, Taylor HG
M. D. Anderson Hospital and Tumor Institute, Houston, TX, 77030
Proc Am Soc Clin Oncol; 1:C-244 1982

Two-hundred-seventy-seven pediatric patients received a nutritional assessment at the MD Anderson Hospital. Initial dietary intakes of patients with no prior treatment demonstrated a diet similar to the general population, when compared to the data of the Health and Nutrition Examination Survey (HANES), United States. The caloric intake was 75 percent of recommended dietary allowances (RDA) in a group of patients with nonmalignant diseases, and 80 percent RDA in groups of patients with hematopoietic malignancies or with solid tumors. Protein intake was greater than 100 percent of RDA for all groups. Dietary iron was the nutrient lowest in intake with a range of 70-78 percent of RDA. At six month evaluations no significant changes occurred except for an increase in iron, niacin, riboflavin and protein in the group with solid tumors. The incidence of malnutrition was not different from the general population, in agreement with the dietary data, with one exception: for Ewing's sarcoma the weight/height percent of norm was 84.22 +/-6.57 as compared for the total population of 102.31. With this one exception most malnutrition seen in pediatric cancer patients appears to be iatrogenic. (no Refs)

93. NEUROPSYCHOLOGICAL FUNCTIONING OF LONG-TERM SURVIVORS OF CHILDHOOD CANCER (MEETING ABSTRACT)

Copeland DR, Pfefferbaum B, Fletcher J, Jaffe N, Culbert S
M. D. Anderson Hospital, Houston, TX, 77030
Proc Am Soc Clin Oncol; 1:C-181 1982

Thirty-two children who are long-term survivors of acute lymphocytic leukemia were administered a battery of neuropsychological and academic achievement tests to assess current functioning and compare radiated vs nonradiated patients. The areas assessed included: intelligence quotients; visual-motor, tactile-spatial, and motor skills; memory and learning; language; and academic achievement. Fourteen had had no CNS irradiation (Group A); 18 (Group B) had. Current age ranged from 6 to 18 years. Range of age at diagnosis for Group A, (no XRT (x-ray therapy)) was 2 to 11; Group B's (with XRT) age ranged from 2 to 8 1/2. Group B (XRT) scored lower on all 39 neuropsychological measures except 2. Statistically significant differences in performance were found in the following areas: WISC-R Verbal IQ and Full Scale IQ, the WRAT Arithmetic subtest, and three nonverbal memory measures. These results are considered preliminary, but suggest that radiation treatment has detrimental effects on the child's functioning. In view of the finding that the non-irradiated group consistently obtained higher scores, it is expected that with a larger sample, significant differences will be found in other measures as well. (no Refs)

94. INFLUENCE OF PLACE OF TREATMENT OF DIAGNOSIS, TREATMENT AND SURVIVAL IN PEDIATRIC SOLID TUMORS (MEETING ABSTRACT)

Kramer S, Meadows A, Pastore G, Jarrett P, D'Angio GJ
Children's Hospital of Philadelphia, Philadelphia, PA, 19104
Proc Am Soc Clin Oncol; 1:C-721 1982

This study covers the period 1970-1979 and examines differences between cancer centers (CC) and noncancer centers (NCC) in terms of management procedures and outcomes for three solid tumors: Wilms' tumor (N 74), rhabdomyosarcoma (N 76), and medulloblastoma (N 75). Management measures reviewed included the degree to which important pretreatment evaluations were performed, types of therapy employed, and extent of followup examinations. Outcome variables were disease-free survival and frequency of deaths related to complications of therapy. Differences in 3-year survival between CC and NCC were noted for medulloblastoma (74% vs 48%) and rhabdomyosarcoma (46% vs 30%), but not for Wilms' tumor (81% vs 87%). Among medulloblastoma patients, differences were detected in the frequency of pretreatment evaluations and therapy employed. In particular, 26% in NCC vs 73% in CC had pretreatment computerized axial tomographic scans performed, and significantly fewer NCC patients received radiation to the spinal cord and a primary tumor boost. For rhabdomyosarcoma, the principal management contrast found was that multiagent chemotherapy was used less often in NCC. Wilms' tumor patients were evaluated and treated similarly in the community vs the CC, except for some contrasts in surgical approach. (no Refs)

95. MEDULLOBLASTOMA, THYROID CARCINOMA, AND RECURRENT BRAIN TUMOR IN THE SAME PATIENT.

Rosenstock JG, Schut L, Zimmerman R, Rorke L, D'Angio G, Raney RB, Halpern S, Rosenstock J, Packer R
(c/o Raney) Div. Oncology, Children's Cancer Res. Center, 34th St. and Civic Center Blvd., Philadelphia, PA, 19104
Med Pediatr Oncol; 10(2):161-164 1982

The case of a 10-yr-old girl who underwent subtotal removal of a right cerebellar medulloblastoma and radiotherapy (4,000 rad to the whole brain, 1,000 rad to the posterior fossa, and 3,000 rad to the spinal axis) and developed thyroid carcinoma and recurrent brain tumor 8.5 yr later, is reported The child first presented with progressive lassitude, morning vomiting, ataxia, left head tilt, and bilateral papilledema. Over the next years, the only residual problems were short stature and persistent partial alopecia. A thyroid nodule was discovered 8.5 yr later and subtotal thyroidectomy revealed follicular thyroid carcinoma. Four yr later the patient presented with acute onset of ataxia. Computed tomography (CT) demonstrated a contrast-enhancing, partially necrotic, left cerebellar hemispheric mass displacing the fourth ventricle anteriorly and to the right. The enhancement pattern of the cerebellar folia was suggestive of tumor infiltration. At surgery, a tumor was found in the left cerebellum infiltrating down between the folia. Pathologically, the tumor had features of malignant astrocytoma with evidence of recurrent medulloblastoma. The possible association between previous radiation and the development of the two later tumors is discussed. A combined approach incorporating surgery, limited field radiation therapy, and chemotherapy was planned. Intrathecal methotrexate and radiation therapy (4,080 rad) were administered; repeat CT scan showed residual enhancement in the posterior fossa. A trial of cis-platinum was being considered. (10 Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

96. GENETICS OF A FAMILIAL CANCER SYNDROME CHARACTERIZED BY SARCOMAS AND DIVERSE NEOPLASMS (MEETING ABSTRACT)

Blattner WA, Zener KA, Greene MH, Mulvihill JJ, Li FP, Fraumeni JF
National Cancer Institute, Bethesda, MD, 20205
Proc Am Soc Clin Oncol; 1:C-711 1982

In 1969, Li and Fraumeni described a familial syndrome of sarcomas (S), breast (B), and other neoplasms affecting children and young adults. The current survey of 26 families with S and one other cancer (Ca) (excluding non-melanotic skin) in first-degree relatives was undertaken to characterize the syndrome. Among 1,242 family members, 283 primary Ca's were ascertained. In 27 cases multiple primary Ca's were documented including 1 with 4 separate primaries and 3 with triple primary Ca's. Excluding the 26 S in index cases, the distribution of Ca types was: B 21%, S 12.8%, lung (Lu) 9.3%, brain (Br) 8.1%, leukemia (L) 6.6%, gastric 4.2% and pancreas 3.9%. Adrenal cortical cancers were reported in 3 children. The age distribution for certain neoplasms (S, L, Br) resembled the expected pattern, while others (B, Lu) tended to occur at a younger age than usual. Review of pedigrees revealed 2 patterns: in 12 families, Ca's clustered in distant branches traced through a single line of descent; in 10, Ca's clustered in a single sibship with multiple ancestral branches contributing to the familial tumor diathesis. Demographic characteristics and tumor types were indistinguishable in the 2 groups. These data support the concept that susceptibility mechanisms are shared by several forms of Ca including bony and soft-tissue sarcomas; brain, breast, and lung tumors; and leukemia. (1 Ref)

AUTHOR INDEX WITH CITATION NUMBERS

Ablin A. 89
Aboulola M. 19
Abromowitch M. 51
Abromowitch M. 52
Adkins J. 89
Aguirre P. 20
Ahmadi J. 27
Allen JC. 28
Allen JC. 32
Ansari AM. 16
Ardissone P. 90
Armstrong EA. 39
Aur RJ. 53
Aur RJ. 59
Avery L. 53
Ayala AG. 11
Ayala AG. 12
Baehner RL. 24
Bajetta E. 2
Ball F. 21
Banzet P. 8
Barr RD. 67
Bayle-Weisgerbe. 72
Becker TS. 27
Bedwinek JM. 30
Behar C. 17
Belasco JB. 86
Bellani FF. 83
Berberich R. 43
Berman A. 37
Bhambhani K. 62
Birembaut P. 17
Black M. 37
Blane CE. 22
Blattner WA. 96
Bona G. 90
Boukheloua B. 19
Bowman P. 46
Bowman P. 51
Bowman WP. 45
Bowman WP. 49
Bowman WP. 53
Bowman WP. 59
Bracken RB. 10
Bracken RB. 11
Bracken RB. 12
Brantley HT. 35
Brasch RC. 76
Brauner R. 29
Brecher M. 37
Brecher M. 42
Brecher ML. 44
Brecher ML. 48
Brecher ML. 55
Brough AJ. 14
Burgert EO. 47
Burke J. 43
Caillaud JM. 72
Caillou B. 72
Cairnes DA. 45
Cairnes DA. 46
Candiani F. 9
Cangir A. 5
Carr D. 92
Carter P. 92
Casale AJ. 13
Castellino RA. 65
Cesarini J. 8
Champion J. 15
Champion J. 75
Chan H. 34
Chan HS. 78
Chen T. 58
Coates TD. 24
Coates TD. 66
Cocito MG. 9
Cohen M. 37
Cohen ME. 48
Cohen RA. 65
Coody D. 92
Copeland DR. 93
Cordero di Mont. 90
Crom WR. 45
Crom WR. 46
Culbert S. 93
Cushing BA. 14
Czernichow P. 29
D'Angio G. 95
D'Angio GJ. 23
D'Angio GJ. 25
D'Angio GJ. 94
Dahl G. 52
Dahl GV. 53
Daneman A. 78
Daoud S. 17
Das L. 14
De Lorimier A. 23
De Sousa M. 38
DeWys WD. 91
Del Maschio M. 9
Detamore CM. 24
Deutsch M. 89
Di Terlizzi A. 9
Diamond LS. 48
Dittrich J. 31
Donaldson M. 41
Donaldson S. 43
Donaldson SS. 65
Donaldson SS. 71
Donaldson SS. 91
Duffner PK. 48
Ekert H. 68
Enzinger FM. 6
Enzinger FM. 7
Evans AE. 23
Evans AE. 25
Evans RC. 47
Evans WE. 45
Evans WE. 46
Exelby P. 89
Filippa D. 56
Finklestein JZ. 23
Fisher R. 58
Fitz CR. 78
Flanigan RC. 13
Fletcher J. 93
Forman E. 37
Forman E. 48
Foulkes M. 1
Frankel LS. 63
Fraumeni JF. 96
Freedman M. 34
Freeman A. 37
Freeman A. 48
Freeman AI. 44
Freeman AI. 55
Fryer C. 58
Fuller LM. 58
Gaillard D. 17
Gasparini M. 2
Gasparini M. 83
Gehan E. 58
Gehan EA. 3
Gerard-Marchant. 72
Ghavimi F. 32
Ghavimi F. 91
Gianni C. 2
Gilchrist GS. 47
Gilchrist GS. 58
Glader B. 43
Glicksman A. 37
Glicksman A. 44
Glicksman A. 48
Glidewell O. 37
Glidewell O. 48
Goepfert H. 5
Good RA. 38
Gosser J. 60
Green AA. 75
Green DM. 55
Greenberg M. 34
Greene MH. 96
Gribbin M. 34
Griep JA. 66
Grogan TM. 70
Grosfeld J. 89
Grosfeld JL. 24
Grossi M. 55
Guarda L. 10
Guarda L. 12
Guarda LA. 11
Halpern S. 95
Hammond D. 23
Hammond D. 36
Hammond D. 41
Hammond D. 60
Hammond D. 61
Hammond D. 89
Hammond E. 15
Hanks G. 64
Hanson W. 58
Hargreaves H. 54
Harris M. 37
Harris M. 48
Havlova M. 31
Hawkins H. 54
Hays D. 58
Hays D. 89

Hecht ST 76
Heesen J 73
Heller R 58
HelsonL 28
Heyn R 4
Higgins G 58
Hitzig WH 26
Hockenberry MJ 63
Holland J 48
Holland JC 37
Hustu HO 40
Hustu HO 59
Hutson PR 45
Hutson PR 46
Hutter JJ 70
Ilstrup DM 47
Isaacs H 89
Italiano F 90
Jaffe N 10
Jaffe N 11
Jaffe N 12
Jaffe N 93
Jarrett P 94
Jenkin D 34
Jenkin D 58
Jereb B 28
Jereb B 56
Johnston DA 63
Jones B 37
Jones B 44
Jones B 48
Kadir S 80
Kalvach P 31
Kalwinsky D 49
Kalwinsky D 52
Kamiya H 57
Kaplan HS 65
Kaplan HS 71
Kaplan I 81
Kelly JO 62
Kennedy LA 39
Khan A 33
King OY 84
King OY 87
Kinkaid M 33
Kinzie JJ 64
Kolihova E 16
Kovnar E 30
Kowalczyk J 55
Krailo M 89
Kramer S 64
Kramer S 94
Kung F 58
Ladjadj M 19
Lange B 57
Lauria MM 35
Lebreuil G 19
Leikin S 23
Leikin S 89
Lemerle J 29
Leventhal BG 33
Li FP 96
Lindberg RD 3
Link M 43
Littman P 82
Loghmani ES 24
Lombardi F 2
Ludwig R 74
Lusher JM 14
MacLaren IA 50
MacLean CJ 64
Mahoney DH 85
Martin DJ 78
Matthews RN 68
Maurer H 4
McCallister J 52
McClure P 34
McMillan C 35
McRoberts JW 13
McSweeny J 37
Meadows A 36
Meadows A 94
Mehash Kumar AP 15
Micheau C 72
Miller DR 61
Miller DR 69
Minowada J 55
Mole B 8
Moore PJ 13
Morville P 17
Mott M 43
Mulvihill JJ 96
Munzer M 17
Murphy SB 53
Mussa GC 90
Naidich TP 27
Nesbit M 41
Nesbit M 60
Nesbit M 61
Nesbit ME 36
Neville AJ 67
Nevsimalova S 31
Newton WA 4
Nisce LZ 56
O'Neill JA 80
O'Sullivan P 78
Obenbergerova D 16
Ochs J 51
Oei TO 24
Ortega J 36
Ortega J 60
Ortega JA 41
Packer R 95
Packer RJ 32
Pai KR 67
Palkes H 30
Palmer N 1
Parker BR 65
Pastore G 94
Paton CM 68
Perale R 9
Pescarini L 9
Pfefferbaum B 93
Philippart AI 14
Ploton D 17
Pluss HJ 26
Pratt CB 75
Provisor AJ 24
Pui CH 49
Pui CH 51
Ragab AH 3
Ramirez I 42
Ramirez I 92
Ramsay N 89
Rand CA 67
Raney RB 3
Raney RB 82
Raney RB 95
Rappaport R 29
Ravindranath Y 62
Raybaud C 19
Reinecke CA 70
Renier D 29
Rickard KA 24
Rivera G 45
Rivera G 51
Rivera G 52
Rivera G 53
Rivera G 59
Robey G 78
Robison L 36
Robison LL 41
Rogers P 60
Rogers PC 50
Rohrbaugh TM 86
Rorke L 95
Rosenberg HK 79
Rosenstock J 95
Rosenstock JG 95
Rosenstock JR 86
Roskos RR 47
Rottoli L 83
Rowland J 37
Ruymann F 3
Sachs N 1
Sandberg A 55
Santoro A 83
Sather H 23
Sather H 25
Sather H 60
Sather H 61
Sather HN 36
Sather HN 41
Saunders F 34
Schettler D 73
Schultz G 62
Schut L 95
Scully RE 20
Segall HD 27
Sheehan W 58
Shils ME 91
Shmookler BM 6
Shmookler BM 7
Sibley R 37
Silver TM 22
Silverman CL 30
Silvestro L 90
Simone JV 53
Skala JP 50
Sklar M 40
Smith C 78
Smith KL 40
Sonley M 34
Soule EH 3
Soule EH 4
Starling KA 85
Starr S 57
Steuber CP 85
Stewart CA 46
Stewart CF 45
Stowe SM 82
Stromeyer H 74
Stuck KJ 22

Styne DM 76
Suh O 55
Sullivan MP 42
Sullivan MP 58
Suskind RM 91
Sutow W 10
Sutow W 11
Sutow WW 3
Sweet EM 18
Talbot M 72
Talent B 30
Tan CT 38
Taylor HG 92
Tefft M 58
Tefft M 82
Tefft M 88
Ternberg J 58
Thibaud E 29
Thomas 53
Thomas PR 30
Thompson EI 40
Toogood RG 68
Tschaeppeler H 77
Tull B 37
Van Eys J 92
Vogel R 40
Wang YM 11
Wara W 82
Waters KD 68
Watts FB 14
Weaver T 85
Weetman RM 24
Weetman RM 66
Weinberg VE 44
Wells RJ 35
Wesley MN 91
Wharam M 58
White NM 24
White SJ 22
Whitt JK 35
Wilbur J 43
Wilbur JR 84
Wilbur JR 87
Wilimas J 15
Wilimas JA 40
Willich E 74
Wollner N 56
Yu P 24
Zaidi M 33
Zee CS 27
Zellweger U 26
Zener KA 96
Zimmerman R 95
Zitkova M 16
Zucker JM 29

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-3
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 4-13
- OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS..... 14-15
- NEUROBLASTOMAS AND CNS TUMORS..... 16-23
- LYMPHOMAS AND LEUKEMIAS..... 24-40
- OTHER SOLID TUMORS OF CHILDHOOD..... 41-45
- OTHER RELATED CLINICAL STUDIES..... 46-58
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 59-63

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. THERAPY OF RHABDOMYOSARCOMA OF THE ORBIT.

Jurgenssen OA, Reinartz G, Pichler E
Universitats-Kinderklinik, Wahringer Gurtel 74-76, A-1090 Wien, Austria
Paediatr Paedol; 17(2):329-339 1982

Rhabdomyosarcoma of the orbit in five children (10 mo-7 yr and 3 mo old at the time of diagnosis) is reported. All five children had locally extensive tumor growth at the time of diagnosis. Two children showed radiological signs of infiltration of the roof of the orbit. None of the children had locoregional involvement of lymph nodes. Two tumors were Stage I and three were Stage III. Two children underwent exenteration of the orbit after preoperative local radiotherapy (18 Gray in 2-3 days); one of these underwent partial resection of the orbital roof. One child underwent exenteration of the orbit after primary radio- and chemotherapy failed to arrest tumor growth. Primary chemo- and radiotherapy (60 Gray) achieved tumor reduction in two children; these two did not undergo exentera-

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tion. Radiotherapy produced acute transitory conjunctivitis in one child and chronic recurrent conjunctivitis in one. Four children were treated with a combination of vincristine, actinomycin D (AMD), and cyclophosphamide. One child, who was considered a bad risk, received adriamycin in place of AMD. Four children were free of tumor and out of therapy 3.5-8 yr after diagnosis. One child died of a respiratory distress syndrome 7 mo after starting therapy; autopsy showed hyaline membrane disease. Mutilating surgery for rhabdomyosarcoma of the orbit can be avoided by using a combination of radio- and chemotherapy without decreasing the chances for survival. If conservative therapy fails, surgery may be performed. (40 Refs) (In GER)

2. SOFT-TISSUE SARCOMA OF THE TRUNK IN CHILDHOOD. RESULTS OF THE INTERGROUP RHABDOMYOSARCOMA STUDY.

Raney RB, Ragab AH, Ruymann FB, Lindberg RD, Hays DM, Gehan EA, Soule EH
Div. Oncology, Children's Hosp. Philadelphia, 34th St. and Civic Center Blvd., Philadelphia, PA, 19104
Cancer; 49(12):2612-2616 1982

Disease-free survival data were obtained on 30 children with soft-tissue sarcoma of the trunk. The children were clinically grouped and treated in accord with the IRS protocol from November 1972 through December 1976. Histologically, 40% of the tumors were alveolar rhabdomyosarcoma (RMS), 20% were embryonal RMS, 20% were extraosseous Ewing's sarcoma, 17% were undifferentiated sarcoma, and 3% were pleomorphic RMS. In 14 patients with primary tumors of the chest wall, the male-to-female (M:F) ratio was 3:11, and the median age of 12.5 yr. Five of the 10 patients (50%) with localized tumor (Groups I-III) were disease-free at a median of 4.7 yr after diagnosis; 2 died of locally recurrent tumor, 2 died of metastases to lungs or bones, and 1 died of intracranial hemorrhage. None of the four with chest wall tumors and distant metastases (Group IV) survived. In 10 patients with localized paraspinal primary tumors, the M:F ratio was 8:2 and the median age was 3.5 yr. None had metastases. Seven of 10 (70%) were disease-free at a median of 4.7 yr after diagnosis. Two died after regional recurrence developed (1 retroperitoneal, 1 meningeal), and one died of lung metastases. In six patients with primary tumors of the abdominal wall, the M:F ratio was 3:3 and the median age was 9.5 yr. Three of five with localized tumor (Groups I-III) were disease-free at a median of 5 yr after diagnosis; one died after regional recurrence, and one died from accidental trauma. The one Group IV patient died of tumor. Overall, 15 of 30 patients (50%) are alive and free of recurrent disease at a median of 5+ yr after initiation of treatment. The authors conclude that prognosis is most favorable for patients with paraspinal tumors, least favorable for those with chest wall tumors, and intermediate in patients with abdominal wall tumors. Prognostic differences appeared to be influenced by extent of disease at diagnosis and histologic subtype of the sarcoma. (Author abstract) (19 Refs)

3. LIPOBLASTOMA IN INFANTS AND CHILDREN.

Stringel G, Shandling B, Mancer K, Ein SH
Children's Hosp. Eastern Ontario, 401 Smyth Road, Ottawa, Ontario K1H8L1, Canada
J Pediatr Surg; 17(3):277-280 1982

Lipoblastoma and lipoblastomatosis are rare benign tumors of embryonal fat with a tendency to local invasion but not to metastasize. To date, there have been 60 cases described in the international literature. There has never been a report in a child older than 8 yr. The main clinical characteristics are the presentation, usually below 3 yr of age, the rapid growth of the mass and the peripheral location, mainly in the extremities. Although CT scan may show a fatty tumor, there is no single test to make the differential diagnosis (which includes benign lipoma, liposarcoma and myxoliposarcoma) and the treatment should be based on clinical findings. We have treated four patients with this condition. Two were intrathoracic, one was intraperitoneal, and one was a tumor of the upper arm. All presented as rapidly-growing tumors and were clinically assumed to be malignant. We recommend complete but conservative excision of the tumor; there are reported recurrences after inadequate excision. This is a benign tumor and radical cancer surgery should be avoided. (Author abstract) (9 Refs)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

4. TREATMENT OF BILATERAL WILMS' TUMORS - A 22-YR EXPERIENCE.

Wasiljew BK, Besser A, Raffensperger J
(c/o Raffensperger) Div. General Surgery, Children's Memorial Hosp., Northwestern Univ. Medical Sch., Chicago, IL, 60614
J Pediatr Surg; 17(3):265-268 1982

A total of 157 children with Wilms' tumors were treated at The Children's Memorial Hospital during the years 1956-1978. Fourteen (or 9%) of these children had bilateral lesions. During the early years, treatment consisted of surgical excision of one kidney with radiation to the second tumor. During the second decade of this study a more aggressive approach to bilateral tumors was used consisting of nephrectomy on the side of the large tumor, with a heminephrectomy on the contralateral side and chemotherapy. More recently, we have attempted bilateral heminephrectomy when possible, together with increasingly aggressive chemotherapy. This series of patients allows us to compare the results of various treatment modalities among our own patients as well as those reported from other pediatric surgical centers. (Author abstract) (12 Refs)

5. IMPROVED PROGNOSIS FOR WILM'S TUMOR THROUGH ADJUVANT COMBINATION CHEMOTHERAPY.

Haas RJ, Helmig FJ, Hausner H, Elfe R, Devens K, Janka GE, Helmig M, Lampert F
Abteilung fur Hamatologie/Onkologie, Universitats-Kinderlinik, Lindwurmstr. 4, D-8000 Munchen 2, W. Germany
Onkologie; 5(2):60-66 1982

Seventy-eight children with Wilms' tumor Stage I-IV diagnosed since 1960 are presented. There were two groups of patients: one group consisting of 35 patients which received adjuvant chemotherapy for 1 yr, the other group consisting of 43 patients which received no chemotherapy. Surgical excision and irradiation was identical in both groups. The prognosis was greatly improved by adjuvant chemotherapy: 4-yr survival rates increased from 25 to 69%. Late side effects from radiation and chemotherapy were noted: 15/78 patients suffered from scoliosis and all patients treated by chemotherapy had a decreased lymphotoxin activity over years. The following factors appear to be related to prognosis: the extent of disease in patients determined by better techniques, histopathology of the tumor, and the nature of treatment. (Author abstract) (33 Refs) (In GER)

6. BILATERAL WILMS' TUMOR AND SECONDARY MALIGNANCIES.

Wikstrom S, Louhimo I
(c/o Louhimo) Children's Hosp., Univ. Helsinki, Helsinki, Finland
J Pediatr Surg; 17(3):269-272 1982

A series of six patients with bilateral Wilms' tumor (nephroblastoma) is presented. Multimodal therapy yielded a survival rate of 83% at 2 yr of follow-up. However, at the end of a later follow-up period only two patients (33%) were alive. Of the four patients who died, only one died of Wilms' tumor. One died of complications of aggressive chemotherapy and two patients died after 12 and 16 yr following treatment of secondary malignant tumors arising in the irradiated region. Patients with bilateral tumor should be followed at regular intervals for the duration of life for the occurrence of secondary malignant tumors. (Author abstract) (14 Refs)

7. THE OUTCOME OF WILMS' TUMOR IN INFANTS, ITALY 1970-79.

Pastore G, Cordero di Montezemolo L, Brach dell Prever A, Bartolozzi G, Carli M, Castello M, Ceci A, Fossati-Bellani F, Guazzelli C, Lo Curto M, Madon E, Marchi A, Massolo F, Mori PG, Paolucci G, Pianca C, Rosati M, Tamaro P
Ospedale Infantile Regina Margherita, Piazza Polonia 94, 10126 Torino, Italy
Tumori; 68(2):133-136 1982

Thirty-four infants under 1 yr of age with Wilms' tumor were diagnosed and treated in 14 Italian pediatric oncology units during 1970-79. The 3-yr survival rates decreased with higher group unilateral tumors: 95% in Group I Wilms' tumor, 75% in Group II and 20% in Group III. The survival rates for children with Group I and II Wilms' tumor were similar for those who were treated with surgery and chemotherapy and those who also received postoperative radiotherapy. During 1975-79 fewer patients with group I Wilms' tumor received radiotherapy (1 of 11) than during 1970-74 (4 of 6, p less than 0.05). All these children are alive at this writing. (Author abstract) (8 Refs)

8. EFFECTS ON PULMONARY FUNCTION OF WHOLE LUNG IRRADIATION FOR WILMS' TUMOUR IN CHILDREN.

Benoist MR, Lemerle J, Jean R, Rufin P, Scheinmann P, Paupe J
Laboratoire d'Exploration Fonctionnelle Respiratoire, Hopital des Enfants Malades, 149 rue de Sevres, 75730 Paris Cedex 15, France
Thorax; 37(3):175-180 1982

The effect of whole lung irradiation on lung function was investigated in 48 children treated for Wilm's tumor with pulmonary metastases. Lung function tests were performed before irradiation and were repeated annually for as long as possible, the length of follow-up varying from 2 to 17 years. A reduction in both lung volume and in dynamic compliance was clearly observed. In some patients these changes occurred in the early post-irradiation months, but in most the decrease observed progressed over longer periods of time. Static pressure volume curves, blood-gases, and carbon monoxide transfer were normal. These findings make it unlikely that postirradiation pulmonary fibrosis was involved. Another explanation for the decreased lung volume and dynamic compliance might be failure of alveolar multiplication. Muscular injury is unlikely as the patients were able to produce normal transthoracic pressures. A failure of chest wall growth is also possible and would explain the progressive restrictive impairment but not the early lung function changes. It is suggested that the early effects detected in some patients were the result of lung injury and that later effects resulted from impaired chest wall growth. (Author abstract) (19 Refs)

9. BONE METASTASES IN CHILDREN WITH NEPHROBLASTOMA.

Volkova LD, Koshechkina NA, Sokolova IN
Cancer Res. Center, Moscow, USSR
Vestn Rentgenol Radiol; (2):56-59 1982

Of 380 children with nephroblastoma, 9 (4 boys, 5 girls; 1.5-8 yr old) had bone metastases. In two patients, the Wilms' tumor had histological structure similar to that of the undifferentiated sarcoma (relatively monomorphic oval cells with clear cytoplasm and oval nucleus). Bone metastases were detected 1-10 mo after diagnosis of the primary tumor in six patients. Six patients had bone metastases in combination with metastatic involvement of other organs and with recurrences of the primary tumor. Only three children had lung metastases, while four had soft tissue metastases (skin, fat, abdominal wall, parietal peritoneum). The first manifestations of uncomplicated bone metastases were swelling of the soft tissue and reduced movement in the joints. Pain, pathological fractures, and spinal cord compression were indicative of the complicated metastatic involvement. Of nine children, five had solitary bone metastases and four had multiple bone metastases. (7 Refs) (In RUS)

10. CONGENITAL MESOBLASTIC NEPHROMA. STUDY OF FIVE CASES AND REVIEW OF THE LITERATURE.

Rosa B, Royon M, Gubler JP, Abelanet R
Departement d'Anatomie Pathologique, l'UER Cochin-Port-Royal, 27 rue du Faubourg Saint Jacques, 75674 Paris Cedex 14, France
Sem Hop Paris; 58(22):1354-1360 1982

Mesoblastic nephroma is a congenital renal tumor sometimes locally and regionally aggressive but never giving metastases, in contrast with nephroblastoma. It almost always occurs in the newborn. Therefore, every renal tumor discovered before 12 months must evoke mesoblastic nephroma. No preoperatory adjuvant treatment must be used in infants under 6 months old. Considering five personal observations and review of literature, the authors expose the main etiologic and clinical characteristics of this disease, the gross and microscopic features which allow its diagnosis and the histogenetic theories of this curious lesion, probably border-line between neoplasias and dysplasias of renal parenchyma. (Author abstract) (53 Refs) (In FRE)

11. ALPHA-FETOPROTEIN AS MARKER IN INFANTILE GERM-CELL TUMORS.

Norgaard-Pedersen B, Kamper J, Erichsen G, Hertz H, Nielsen ES, Sell A, Sogaard H, Tygstrup I, Ysaing M
Klinisk kemisk afdeling, Sonderborg sygehus, DK-6400 Sonderborg, Denmark
Ugeskr Laeger; 144(18):1291-1295 1982

The serum alpha-fetoprotein (AFP) levels were determined in 19 children (11 boys and 8 girls, 5-37 mo old) with germ cell tumors. Endodermal sinus tumors (EST) of the testicles were diagnosed in seven patients, testicular teratomas in four, sacrococcygeal EST in two, sacrococcygeal EST with teratoma in four, EST and teratoma of the ovary in one and vaginal embryonal carcinoma in one. Localized disease was found in 14/19 patients, disseminated tumor disease in 5/19. Eighteen patients were subjected to surgery, 10 to chemotherapy and 9 to radiotherapy. Production of AFP was found in the seven patients with testicular EST, in six with sacrococcygeal tumors, in the patient with ovarian EST and teratoma and in the pa-

tient with vaginal embryonal carcinoma. The AFP levels, determined within the first 60 days after surgery in 18 patients, were normal in 4/18 and 80-119,000 ug/liter in 14/18. The AFP levels were determined in 14 patients beyond the first 60 days: normal values were found in 11/14. The tissue AFP levels, determined in seven patients, were elevated in five. The serum AFP levels were found to be a sensitive indicator of tumor recurrence and disease activity. Ten of the 11 patients with testicular tumors are alive without tumor recurrence, the 11th died of complication of chemotherapy. Two of the six patients with sacrococcygeal tumors are alive for more than 3 yr. One patient with ovarian tumor and another with vaginal tumor died after 1 and 2 yr, respectively. (15 Refs) (In DAN)

12. TREATMENT OF CHILDREN WITH DYSGERMINOMA OF THE OVARY.

Weinblatt ME, Ortega JA

(c/o Ortega) Div. Hematology-Oncology, Childrens Hosp. Los Angeles, 4650 Sunset Blvd., Los Angeles, CA, 90027

Cancer; 49(12):2608-2611 1982

The therapeutic approach to dysgerminoma, the most common malignant ovarian tumor in children, has been primarily surgical, with radical excision for tumors extending beyond their capsule. Four children with localized disease were treated with limited surgery only and are free of disease. Five others with extensive disease were treated with chemotherapy as the primary therapeutic modality, with or without adjuvant radiotherapy, and three are alive and remain free of disease. Only the two patients with an admixture of other malignant germ cell tumors had recurrence of the other malignant elements after an initial good response. This experience demonstrates pronounced in vivo tumoricidal activity and supports a therapeutic approach to extensive childhood dysgerminoma with an initial chemotherapeutic regimen, resulting in sparing of pelvic and reproductive organs. (Author abstract) (12 Refs)

13. ENDOCRINE PROFILE OF AN OVARIAN ANDROBLASTOMA.

Munemura M, Nakamura T, Matsuura K, Maeyama M, Iwamasa T

(c/o Maeyama) Dept. Obstetrics and Gynecology, Kumamoto Univ. Medical Sch., Kumamoto 860, Japan

Obstet Gynecol; 59(6,Suppl):100S-104S 1982

The endocrine profile of a 16-yr-old girl with an androblastoma of the left ovary is presented. Calculated ratios of steroid hormones between the intraoperative peripheral vein blood, the left ovarian vein blood, and the left ovarian tumor fluid were progesterone, 1:10.2:39.5; 17-hydroxyprogesterone 1:18.7:64.7; dehydroepiandrosterone (DHEA), 1:10.4:35.6; androstenedione (A), 1:24.4:92.3; testosterone (T), 1:18.6:69.2; and estradiol (E2), 1:11.0.26.3. The peripheral levels of hormones before left salpingo-oophorectom were T, 7.5 ng/ml; DHEA, 19.9 ng/ml; A, 12.3 ng/ml; and cortisol, 11.4 ug/dl. Corresponding levels at 14 days after surgery were 0.75 ng/ml; 5.84 ng/ml; 1.94 ng/ml; and 15.6 ug/dl, respectively. Preoperatively, an elevated basal level of luteinizing hormone (LH) and a normal basal level of follicle-stimulating hormone (FSH) (high LH:FSH ratio) were found. These data suggest that (1) androgens from the androblastoma are responsible for virilization despite aromatizing enzyme activities within normal limits, and (2) both the delta5 and delta4 pathways are involved in the biosynthesis of androgens, with that of delta5 being predominant. (Author abstract) (12 Refs)

OSTEOSARCOMAS, EWING'S SARCOMAS AND OTHER BONE TUMORS

14. EWING'S SARCOMA: THERAPEUTIC EXPERIENCE.

Ribeiro-Ayeh J, Walther A, Horrig C

Zentrum der Kinderheilkunde, Ateilung fur Padiatrische Hamatologie und, Onkologie Klinikum der Johann Wolfgang Goethe-Universitat, Theodor-Stern-Kai 7, D-6000 Frankfurt/Main 70, W. Germany

Monatsschr Kinderheilkd; 130(1):30-35 1982

Four children (2 boys and two girls, 13-14 yr old) with Ewing's sarcoma (ES) were treated with T-6 and T-2 chemotherapy protocols according to Rosen. Tumor sites included the right iliac bone (2 patients), the proximal metaphysis of the left femur (1 patient), and the right humerus (one patient). Preoperative chemotherapy produced regression of tumor and allowed surgical resection in three children. One child underwent resection after one cycle of the T-6 protocol. Examination of the resected tissue indicated the presence of malignant cells. Surgery was followed by an additional cycle of T-6, irradiation with 5,000 rads, and a cycle of T-2 therapy. Because of the finding of malignant cells in the first case, two subsequent patients were treated with two course of T-6 therapy prior to surgery. Examination of resected tissue from these patients detected no malignant cells. The tumor of the humerus involved a pathological fracture. Two courses of T-6 therapy produced regression of the tumor and allowed the fracture to heal. The three children who underwent resection were free of tumor after 12-24 mo. The child with ES of the humerus was free of metastases at 7 mo; pulmonary metastases were detected at 8 mo, shortly before a planned resection. Aggressive chemotherapy is evidently capable of producing regression of EW and thereby enabling resection. Radiotherapy should be avoided when possible because of the morbidity involved. (10 Refs) (In GER)

15. CHEMOTHERAPY OF A MALIGNANT, METASTASIZING GIANT-CELL TUMOR OF BONE. REPORT OF AN UNUSUAL CASE AND THE RESPONSE TO COMBINATION CHEMOTHERAPY.

Mella O, Dahl O, Bang G, Engedal H, Gothlin J, Lunde OD

Dept. Onocology, Haukeland Hosp., 5016 Haukeland Sykehus, Bergen, Norway

Cancer; 50(2):207-211 1982

A 13-yr-old girl was treated surgically for giant-cell tumor of bone originating in the talus and for a recurrence in the distal tibia. She later developed liver and lung metastases and was treated for 2 yr, 5 mo with a combination of vincristine, doxorubicin, cyclophosphamide and actinomycin D, and thereafter with high-dose methotrexate/vincristine with citrovorum factor rescue. A good response was obtained and the patient is without evidence of disease 12 mo after a salvage thoracotomy for residual disease in the left lung. Aspects of this singular case are discussed. (Author abstract) (11 Refs)

NEUROBLASTOMAS AND CNS TUMORS

16. COMBINED RADIONUCLIDE AND X-RAY EXAMINATIONS OF BONE METASTASES IN CHILDREN WITH NEUROBLASTOMA.

Godin VP, Bukhny AE, Aplevich NN, Kochergina NV, Dzhalalov MD
All-Union Cancer Res. Center, Moscow, USSR
Med Radiol (Mosk); 27(5):6-11 1982

Efficacies of 99mTc-pyrophosphate scintigraphy and x-ray examination for the detection of bone metastases were compared in a study of 50 children with neuroblastomas. Among these patients, 1 had neck tumor, 21 had mediastinal tumors, and 25 had retroperitoneal tumors (in 3 children, localization of the primary tumor could not be determined). Histologically, 39 children had neuroblastomas and 11 had ganglioneuroblastomas. Complete coincidence of the results of radionuclide and x-ray examinations was observed in 49/50 patients. Bone metastases were detected in 20 children (scintigraphic data were false positive in 1). Bone metastases were more frequent in the patients with neuroblastomas (19/39), than in those with ganglioneuroblastomas (1/11). Metastases were located in the cranium (14), pelvis (13), femur (14), humerus (4), tibia (3), ribs (3), and vertebrae (4). Scintigraphy provided more accurate diagnosis of metastatic involvement of the ribs and cranium, while x-ray examination was more informative in the patients with small lytic foci located in the epiphysis of the long tubular bones. (2 Refs) (In RUS)

17. EFFECT OF PEPTICHEMIO IN NONLOCALIZED NEUROBLASTOMA.

De Bernardi B, Pastore G, Carli M, Ceci A, Paolucci G, Madon E, Mancini A, Tamaro P, Rebuffi L, Colella R, Cozzutto C
Giannina Gaslini Children's Hosp., 16148 Genova, Italy
Cancer; 50(1):10-17 1982

Peptichemio (PTC), a mixture of oligopeptides of m-L-sarcholysin, acting primarily as an alkylating agent, was utilized as initial therapy following diagnosis in 80 children with nonlocalized neuroblastoma. Of the 67 evaluable patients (21 Stage III, 41 Stage IV and 5 Stage IV-S), 51 had measurable lesions allowing evaluation of PTC activity; objective tumor responses to the drug were recorded in 45 of these 51 cases (88.2%): 5/5 Stage III, 37/41 Stage IV, 3/5 Stage IV-S. Complete responses were obtained in seven patients (13.7%), partial responses in 32 (62.7%), objective improvement in six (11.8%). Four patients (7.8%) had either no tumor change, or tumor progression. There have been two early drug-related deaths (3.9%). Stage III and IV patients responding to PTC were then treated by irradiation + vincristine (VCR), followed by cycles of a combination of adriamycin, vincristine, and cyclophosphamide. Stage IV-S patients received no further therapy. Thirteen of 21 Stage III (61.9%), five of 41 Stage IV (12.2%) and four of five Stage IV-S (80%) are presently alive from 19-48 mo (median, 27 mo). PTC is an effective agent in advanced neuroblastoma. However, the results of this report do not indicate that its addition to a 'standard' treatment, at least in the schedule adopted in this protocol, has improved the final outcome of children with nonlocalized disease. (Author abstract) (38 Refs)

18. ECHOGRAPHY VIA FONTANELLE OF INFANTS AND BABIES.

Cadier L, Diard F
Service de radiologie, Hopital des enfants, 168, cours de l'Argonne, 33077 Bordeaux, France
Med Infant (Paris); 89(2):227-236 1982

Echography may be used to diagnose intracranial hemorrhage in premature babies, cortical necroses and atrophy, subdural hematomas, malformations and hydrocephaly, infections and tumors. Results of the examination vary and is dependent on whether the tumor is supratentorial or subtentorial. Supratentorial tumors may be recognized by the abnormal texture of their intraparenchymal formation. The images from a right thalamic glioma and an astrocytoma from the region of the third ventricle are analyzed. (8 Refs) (In FRE)

19. CYTOLOGICAL FINDINGS FROM CEREBROSPINAL FLUID IN CHILDREN WITH INTRACRANIAL TUMORS.

Doll R, Neumarker KJ, Krause H, Arndt S
(c/o Neumarker), Abteilung fur Kinderneuropsychiatrie der Nervenklinik (Charite), Schumannstrasse 20/21, DDR-1040 Berlin, E. Germany
Dtsch Gesundheitswes; 37(2):63-66 1982

To evaluate the informative value of studying the cerebrospinal fluid in children with intracranial tumors, fluid was obtained preoperatively by lumbar puncture from 86 children. The study group included 19% malignant, 64% benign and 17% unclassified tumors. Studies were most productive, with pathological findings in 39% of patients, with intracranial tumors. Cytological studies were a strong point, providing the most frequent pathological findings. Pleocytosis was found in 39% of children, most frequently associated with medulloblastomas. Tumor cells were found in the cellular sediment of cerebrospinal tumors. Most of the cellular sediments showed an increase in granulocytes, characterized in 45% of patients by eosinophilic granulocytes and in 13% by neutrophilic granulocytes. Immunocompetent cells were found in 33% of the differential sediments, particularly with malignant tumors. (18 Refs) (In GER)

20. CHEMOTHERAPY WITH VINCRISTINE AND BCNU/CCNU IN BRAIN TUMORS OF CHILDREN.

Metz O, Dorffel W, Gohler I, Hassler A, Mateev J, Reddemann H, Todt H, Zastrow J
Universitatskinderklinik (Carl-Zeiss-Stiftung), Kochstrasse 2, DDR-6900 Jena, E. Germany
Dtsch Gesundheitswes; 37(13):595-600 1982

A total of 21 children aged between 1 8/12 and 17 7/12 taken ill with brain tumors (11 medulloblastomas, 6 ependymoblastomas, 4 astrocytomas) were given irradiation therapy and cytostatic medication after surgery. All children covered by the study were afflicted with primary tumors and there were no signs of metastases in the cerebrospinal fluid before surgery. Drainage operations were regarded as an exclusion criterion in the study. The cytostatic therapy consisted of Vincristine alone during irradiation treatment, followed by massive doses of Vincristine and carmustine (BCNU) or lomustine (CCNU) every 4 weeks. The total duration of the therapy was 1 yr. Of the 21 children, 13 (61.9%) suffered a relapse after an av of 28.3 mo (8-50 mo). Of these, eight patients died after 13-57 mo (on av after 32.4 mo) of illness. These results failed to meet the hopes pinned on postoperative irradiation and medication therapy. One of the reasons for this is probably the fact that liquor irradiation treatment was not always given consist-

ently. No differences were observed between BCNU therapy (10 patients) and CCNU therapy (11 patients). Cytostatic medication with nitrosourea derivatives BCNU and CCNU was tolerated by the children without serious complications. In future the working group 'Pediatric Hematology and Oncology' should try to improve and maintain with consistency the therapeutic conception for treating brain tumors in children, which provides for intensive cytostatic therapy followed by irradiation after surgery. (Author abstract) (12 Refs) (In GER)

21. SURGICAL MANAGEMENT OF PINEAL AREA TUMORS IN EARLY CHILDHOOD.

Demakas JJ, Sonntag VK, Kaplan AM, Kelley JJ, Waggener JD
(c/o Sonntag) 222 West Thomas Road, Phoenix, AZ, 85013
Surg Neurol; 17(6):435-440 1982

Three cases of tumors of the pineal area in young children are presented. Surgical intervention is advocated because of the greater than 50% chance of the tumor's being benign in this age group and the greater risk from radiation to the developing brain. (Author abstract) (29 Refs)

22. FLUORESCEIN ANGIOGRAPHY IN RETINOBLASTOMA WITH CONSERVATIVE TREATMENT.

Minei M, Yamana Y, Ohnishi Y, Arakawa T
Dept. Opthalmology, Kyushu Univ. Faculty Medicine, 3-1-1 Maidashi, Higashi-ku, Fukuoka 812, Japan
Nippon Ganka Kiyo; 33(2):354-360 1982

Treatment of 21 patients (11 boys, 10 girls; 10 days to 14 yr old) with retinoblastoma (12 unilateral, 9 bilateral) was investigated. Enucleation of the eye because of more advanced cancer was performed in 8/9 patients with bilateral retinoblastomas. All other affected eyes were treated with irradiation, photocoagulation, cryotherapy, and intra-carotid infusion of anti-cancer drugs. Fluorescein angiography, was performed before, during, and after treatment with good results, indicating that fluorescein angiography is useful in diagnosis and treatment of retinoblastoma. (12 Refs) (In JPN)

23. ARGON LASER PHOTOCOAGULATION THERAPY FOR RETINOBLASTOMA IN A 13-MONTH-OLD CHILD.

Fukuzaki M, Nishimoto Y, Baba Y, Shibata H, Masuyama Y, Sawada A
Dept. Ophthalmology, Miyazaki Medical Coll., 5200 Kihara, Kiyotake, Miyazaki 889-16, Japan
Nippon Ganka Kiyo; 33(2):361-365 1982

A retinoblastoma developed in the left eye of a 13-mo-old boy 40 days after the right eye had been enucleated because of retinoblastoma. The retinoblastoma in the left eye was treated with xenon light coagulation and then 3 wk later with cryotherapy with no effect. Argon laser photocoagulation was performed as a last resort. Immediately after the treatment, the lesion became smaller and the large feeding vessels on the surface of the lesion disappeared. The lesion was extremely cicatrized. Argon laser photocoagulation was thought to be better than xenon photocoagulation because of its higher energy, reduced damage to surrounding tissue, and tissue exposure precision. (3 Refs) (In JPN)

LYMPHOMAS AND LEUKEMIAS

24. THERAPY FOR HODGKIN'S DISEASE IN CHILDREN.

Lobo-Sanahuja F, Garcia I, Jimenez E, Jimenez R, Camacho A, Vargas G
Servicio de Oncologia, Hospital Nacional de Ninos, Apartado 10105, San Jose, Costa Rica
Sangre (Barc); 27(1):26-38 1982

A study was carried out to compare the results attained from the use of cobalt radiation therapy plus cyclophosphamide, vincristine, procarbazine and prednisone (COPP) chemotherapy with those attained by irradiation alone in children with Hodgkin's disease. The percentage of remissions, their duration, and the survival were evaluated in three groups of patients treated with two different protocols started in January 1971 and 1972 and closed in December 1978. Group 1 was comprised of 15 patients without systemic symptoms who had been subjected to laparotomy. Of them, eight were in Stage I, two in Stage II, and five in Stage III; they all received irradiation alone. Total remission was achieved in 100% with mean duration of 38 months. Remission was maintained in 47% of the cases, while 53% relapsed. These last achieved second remission with GOPP, but 3 patients died, 12 being alive, with 84-month survival in 45% of cases. Group 2 included 10 patients in Stages I to III without systemic symptoms. These patients were treated with irradiation plus COPP chemotherapy and achieved complete remission with 31-months mean survival. Group 3 was comprised of 13 patients, 8 in Stage III-B and 5 in Stage IV; they received chemotherapy and radiation therapy, 85% of remissions being attained. Relapse occurred in 18% of the cases in this group, ie two patients, of whom one died and the other attained a second remission with ABVPP (adriamycin, bleomycin, vinblastine, procarbazine and prednisone) chemotherapy. Within this group, 52% of the patients have 84 month survival. The mortality of the series as a whole has been 16% (6 patients). It was concluded that chemotherapy plus 60Co irradiation yields better results than cobalt irradiation alone. (Author abstract) (28 Refs) (In SPA)

25. GONADAL FUNCTION AFTER COMBINATION CHEMOTHERAPY FOR HODGKIN'S DISEASE IN CHILDHOOD.

Whitehead E, Shalet SM, Morris Jones PH, Beardwell CG, Deakin DP
(c/o Shalet), Christie Hosp. and Holt Radium Inst., Wilmslow Road, Manchester M20 9BX, England
Arch Dis Child; 57(4):287-291 1982

The effect of quadruple chemotherapy (mustine, vincristine, procarbazine and prednisolone) on gonadal function was investigated in 15 males and 2 females treated for Hodgkin's disease during childhood. The two females have regular menstrual cycles with evidence of ovulation in one. Twelve of the males have shown normal progression of pubertal development since completing their treatment. Nine out of 10 late pubertal or adult subjects had small testes but only one developed gynecomastia. All four prepubertal subjects had normal basal and peak gonadotrophin responses to luteinizing hormone-releasing hormone. Nine of the 12 subjects studied during puberty or adulthood had either an increased basal serum follicle-stimulating hormone (FSH) level or an exaggerated FSH response to luteinizing hormone-releasing hormone. Each of the six males who provided semen for analysis was azoospermic after an interval of between 2.4 and 8 (mean 5.3) yr after completion of treatment. We conclude that severe testicular damage is common after treatment with mustine, vincristine, procarba-

zine, and prednisolone in childhood. The germinal epithelium is particularly vulnerable and the resultant azoospermia is likely to be irreversible. The Leydig cells are less susceptible to cytotoxic-induced damage. Pubertal development is normal and there is no indication for androgen replacement therapy. (Author abstract) (20 Refs)

26. HERPES ZOSTER AND VARICELLA IN CHILDREN WITH HODGKIN'S DISEASE.

Skovby F, Sullivan MP
Dept. Human Genetics, Yale Univ. Sch. Medicine, P.O. Box 3333, 333 Cedar St., New Haven, CT, 06510
Acta Paediatr Scand; 71(2):269-273 1982

Thirty-nine episodes of herpes zoster and varicella in 94 children with Hodgkin's disease were studied to determine the incidence and complications of these infections and their effect on the prognosis of Hodgkin's disease in children under multimodal treatment. Twenty-nine children (31%) developed herpes zoster and 7 (7%) had varicella. Three children had herpes zoster on two occasions. All children with varicella had uncomplicated infections. One patient died and three had visceral complications secondary to herpes zoster infections. Disseminated herpes zoster in nine children (10%) was more often associated with recurrent or active Hodgkin's disease and led to more complications than localized herpes zoster. Although varicella-zoster infection does not impair the prognosis of Hodgkin's disease, it is a potentially fatal infection and an affected child deserves vigorous treatment and support. (Author abstract) (19 Refs)

27. CHILD'S NON-HODGKIN MALIGNANT LYMPHOMAS HISTOCYTOLOGY. STUDY OF 161 CASES APPLIED TO KIEL CLASSIFICATION.

Gerard-Marchant R, Bayle C, Caillou B
Laboratoire d'Histopathologie A, Institut Gustave-Roussy, F 94800 Villejuif, France
Ann Pathol; 2(2):107-116 1982

A retrospective study of the histology and the cytology of 161 children's (up to 15 yr of age) non-Hodgkin malignant lymphomas (ML) is presented, applying the Kiel classification. New sections were made from the paraffin embedded specimens, stained with various techniques, and the results of histology and cytology were discussed. Lymphoblastic ML represented 85% of the cases in this series. Lymphoblastic ML Burkitt-like type accounted for 59% of the lymphoblastic ML and 50% of all the cases in this series. The smears revealed middle-sized cells with dense nuclei bearing one or many small nucleoli. The cytoplasms were very basophilic and show small clear vacuoles. The 'starry sky pattern' had no diagnostic value. Lymphoblastic ML with convoluted nuclei represented 28% of the lymphoblastic ML and 25% of all the cases. Smears were not as helpful in diagnosis as sections which showed a loose pattern of cells with scanty cytoplasm and tridimensional convolutions of the largest nuclei. Unclassified lymphoblastic ML accounted for about 10% of the ML. The cells were similar to the preceding type but there were no convolutions of the nuclei. However, most of them also belonged to the T lymphoblastic ML. Immunoblastic ML is less frequent (10% of the cases) and were composed of large cells with conspicuous nuclei; the cytoplasm was more or less basophilic and often had PAS-positive inclusions. In nine cases (5.5%), a precise typing could not be achieved, however, all obviously belonged to the high grade ML. Good correlation between cell typing and anatomic localization was noted. Differential diagnosis is discussed. The Kiel classification was shown to be easy to apply and suitable for classifying childhood ML. (30 Refs) (In FRE)

28. BURKITT-TYPE LYMPHOMA IN FRANCE AMONG NON-HODGKIN MALIGNANT LYMPHOMAS IN CAUCASIAN CHILDREN.

Philip T, Lenoir GM, Bryon PA, Gerard-Marchant R, Souillet G, Philippe N, Freycon F, Brunat-Mentigny M
Paediatric Oncology Unit, Centre Leon-Berard, 28, rue Laennec, 69273 Lyon cedex 2, France
Br J Cancer; 45(5):670-678 1982

In a retrospective analysis of 87 cases of Caucasian childhood non-Hodgkin malignant lymphoma (NHML) from Lyon, France, all the cases were diffuse lymphomas, but 47 were diagnosed as monomorphic small non-cleaved NHML, pathologically indistinguishable from Burkitt's lymphoma (BL). BL could then be the most frequent childhood lymphoma in France. This homogeneous series allows better definition of the characteristics of BL within NHML. Age distribution is similar to that of endemic BL, with a sex ratio of 3.7/1. Abdominal masses are initially present in 68% of the cases, whereas jaw is involved in only 4%. The disease is characterized by its overwhelming evolution in the absence of therapy. However, complete remission (CR) is usually obtained after the first chemotherapy regimen. Most relapses occur at 3-8 mo. Death could be related to cerebrospinal fluid (CSF) involvement, local recurrence or secondary marrow involvement. Ninety percent of the patients alive with no evidence of disease (NED) 8 mo after CR can be considered as definitely cured. Our study on Caucasian children with NHML indicates that, from histological and clinical criteria, nearly half the cases are very similar to African BL. Even though EBV rarely associated with our cases, BL could be a worldwide lymphoma. (Author abstract) (41 Refs)

29. SUPERIOR VENA CAVA SYNDROME IN CHILDHOOD AND ADOLESCENCE: A REVIEW OF THE LITERATURE AND REPORT OF THREE CASES.

Janin Y, Becker J, Wise L, Schneider K, Schwartz D, So H
(c/o Becker) 1300 Union Turnpike, New Hyde Park, NY, 11040
J Pediatr Surg; 17(3):290-295 1982

Obstruction of the superior vena cava is rare in childhood and adolescence. Its etiology is now mainly iatrogenic. Mediastinal tumors are the main primary causes of the superior vena cava syndrome (SVCS) in childhood and adolescence. The most common mediastinal tumors presenting with the SVCS are the lymph node tumors and especially the lymphosarcomas. About 50% of the mediastinal tumors are primary in the mediastinum. Early treatment is designed to cause a rapid shrinking of the tumor and should not be delayed by an overly diligent pursuit of the diagnosis. Treatment should consist of a combination of radiation therapy, chemotherapy, and steroids. Surgery should be limited to obtaining tissue for diagnosis, except when the tumor is localized to the mediastinum and is completely resectable. One hundred and seventy two children and adolescents with the SVCS are reviewed and three patients are added. (Author abstract) (83 Refs)

30. THE CORRELATION OF ADENOSINE DEAMINASE AND PURINE NUCLEOSIDE PHOSPHORYLASE ACTIVITIES IN HUMAN LYMPHOCYTES SUBPOPULATIONS AND IN VARIOUS LYMPHOID MALIGNANCIES.

Demeocq F, Viallard JL, Boumsell L, Richard Y, Chassagne J, Plagne R, Lemerle J, Bernard A
Centre Jean Perrin, B. P. 392, 63011 Clermont-Ferrand Cedex, France
Leuk Res; 6(2):211-220 1982

Activities of adenosine deaminase (ADA) and purine nucleotide phosphorylase (PNP) were measured in normal human T cells and in the tumor cell populations from 62 children and 27 adults with lymphoid malignancies. Thymocytes had high ADA activity and low PNP activity, whereas T-peripheral blood lymphocytes (PBL) had low ADA activity and high PNP activity. Malignant B-cell populations had low values of ADA activities and intermediate values of PNP activities similar to E rosette formation negative PBL. Non-T, non-B acute lymphocytic leukemia (ALL) patients had cells with high values of ADA activities and moderate values of PNP activities. A linear correlation between ADA and PNP activities was observed in cells from non-T, non-B ALL, whereas such a correlation did not appear in cells from T-ALL or T-lymphoblastic lymphomas. HLA-DR negative common ALL cell populations had high values of ADA as compared to HLA-DR positive common ALL cell populations. In contrast with HLA-DR, presence or absence of common ALL antigen, as defined by Mo.Ab J5, did not appear to correlate with the level of the enzyme activities. Particularly no clear distinction between the subgroup of malignancies that could be related to corticothymocytes and the subgroup related to medullary thymocyte in terms of both ADA and PNP activities could be disclosed, and large ranges of values were observed in both subgroups. No correlation appeared to occur in the group of T-cell lymphoid malignancies, whereas a correlation existed in cells from children with non-T, non-B ALL. (37 Refs)

31. CRANIAL COMPUTED TOMOGRAPHY DURING TREATMENT OF CHILDHOOD LYMPHOCYTIC LEUKEMIA.

Clausen N, Pedersen H
Dept. Pediatrics G 4064, Rigshospitalet, Blegdamsvej 9, DK-2100 Copenhagen 0, Denmark
Acta Paediatr Scand; 71(2):257-262 1982

Twenty-three children with acute lymphocytic leukemia (ALL) were examined by computed tomography (CT) of the head on two occasions more than 11 months apart. The first CT was performed at the time of diagnosis in 11 children, who were re-examined while still in their first complete remission. They had received prophylactic central nervous system (CNS) treatment consisting of intrathecal methotrexate supplemented by irradiation in seven cases and intermediate dose methotrexate in four cases. Twelve children were receiving treatment for CNS relapse. This included therapeutic irradiation and intrathecal methotrexate. Abnormal CT developed in seven children. Three CT scans demonstrated areas of decreased attenuation coefficient, one with intracerebral calcifications. In five patients, dilatation of the ventricles and cortical sulci had developed. All CT abnormalities occurred in children in remission after CNS relapse. These results indicate that prophylactic treatment including cranial irradiation with 24 Gy and low cumulative doses of methotrexate is a safe procedure. Patients with CNS leukemia are at risk of developing CNS abnormalities, when they receive treatment with cranial irradiation and methotrexate. The risk is not correlated with age or sex of the child, the duration of the disease, the dose of irradiation or the cumulative dose of methotrexate. (Author abstract) (20 Refs)

32. CLINICAL STUDIES ON IMMUNOPOTENT ACTIVITIES IN THE SERA OF CHILDREN WITH ACUTE LYMPHOBLASTIC LEUKEMIA (ALL).

Iguchi K, Akane H, Tanimoto Y, Matsuda T, Sakurai M, Izawa T, Nishioka K
Dept. Pediatrics, Mie Univ. Sch. Medicine, Tsu, Japan
Rinsho Ketsueki; 23(1):53-60 1982

Immunopotentiating activity of leukemic sera from 35 children with acute lymphoblastic leukemia was investigated with the aid of tests of phytohemagglutinin- (PHA), Concanavalin A-, or pokeweed mitogen-induced lymphocyte blastogenic response and a cell cytotoxicity assay. Prior to treatment of leukemia in the patients, lymphocytes from the peripheral blood of the patients had a lower stimulation index of PHA-blastogenesis rate than did healthy controls. A strong immunosuppressive activity was also observed for the sera from patients with T cell Type leukemia, suggesting that the serum immunosuppressive factors may act specifically on the T cell moiety. Following induction of remission, leukemic sera from patients treated greater than 6 mo enhanced PHA-induced lymphocyte blastogenesis. Leukemic cells that were treated with sera from patients in remission and treated with immunotherapy were cultured with peripheral mononuclear cells. A cytotoxic reaction was observed due to the sera. The enhanced effect due to the sera was associated with the serum level of antibodies against leukemia cells. This suggested that the sera of patients given specific immunotherapy contains antibodies that are a part of antibody dependent cell-mediated immunity. (18 Refs) (In JPN)

33. THE EFFECT OF L-ASPARAGINASE ON ANTITHROMBIN, PLASMINOGEN, AND PLASMA COAGULATION DURING THERAPY FOR ACUTE LYMPHOBLASTIC LEUKEMIA.

Priest JR, Ramsay NK, Bennett AJ, Krivit W, Edson JR
Children's Hosp., Incorporated, 345 North Smith Ave., St. Paul, MN, 55102
J Pediatr; 100(6):990-995 1982

Hemostatic function was studied sequentially in 12 children receiving L-asparaginase, vincristine, and prednisone as remission induction chemotherapy for acute lymphoblastic leukemia. The 3-wk period of L-asparaginase therapy was characterized by progressive decreases in plasma antithrombin, plasminogen, and fibrinogen concentrations, and by progressive increases in plasma clotting times (prothrombin time, partial thromboplastin time, thrombin time). Platelet counts rose rapidly during the 3rd and 4th wk of therapy as bone marrow remission was achieved. Factor V levels increased steadily during a 5-wk period, perhaps related to vincristine or prednisone therapy. Recent reports of thrombosis and hemorrhage in children and adults receiving L-asparaginase may be explained by this complex set of abnormalities in coagulation and coagulation control. (Author abstract) (44 Refs)

34. A SYNDROME OF THROMBOSIS AND HEMORRHAGE COMPLICATING L-ASPARAGINASE THERAPY FOR CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA.

Priest JR, Ramsay NK, Steinherz PG, Tubergen DG, Cairo MS, Sitarz AL, Bishop AJ, White L, Trigg ME, Levitt CJ, Cich JA, Coccia PF
Children's Hosp., Incorporated, 345 North Smith Ave., St. Paul, MN, 55102
J Pediatr; 100(6):984-989 1982

L-Asparaginase therapy for childhood acute lymphoblastic leukemia causes deficiencies of plasma hemostatic proteins, especially antithrombin, plasminogen, and fibrinogen. Severe thromboses and hemorrhages occurred in 18 children receiving vincristine, prednisone, and asparaginase therapy for ALL. Thirteen children had intracranial thrombosis or hemorrhage, 4 had extremity thrombosis, and 1 had both an intracranial hemorrhage and an extremity thrombosis. These events occur characteristically in the 3rd and 4th wk of therapy during or just after a 3-wk course of L-asparaginase. Symptoms of headache, obtundation, hemiparesis and seizure were common for the intracranial events; local pain, swelling, and discoloration were common for the extremity thromboses. These complications have been recognized in 1 to 2% of children undergoing induction therapy which includes asparaginase. (Author abstract) (32 Refs)

35. TESTICULAR RELAPSE IN ACUTE LYMPHOCYTIC LEUKEMIA OF CHILDREN.

Fujii M, Bessho F
Dept. Pediatrics, Tokyo Univ., Tokyo, Japan
Rinsho Ketsueki; 23(1):33-39 1982

Occurrence of testicular relapse was studied in 51 boys with acute lymphocytic leukemia that was treated with chemotherapy. Induction chemotherapy consisted of either high dose steroid hormones (SH; prednisolone), high dose SH + vincristine (VCR), or normal dose SH + VCR. The testicular leukemia was treated with SH + VCR or chemotherapy and ipsilateral or bilateral testicular radiotherapy. Of the 51 patients, 43 achieved complete remission, and 17/43 had testicular relapse. There was no significant difference in the rates of testicular relapse between the group of patients who received the large dose SH and those who received the normal dose SH. However, the period of remission prior to relapse was significantly longer (av 53.1 mo vs 19.1 mo) for the patients given the large dose than those given the normal dose. Prognosis for testicular relapse was poor. A policy for prevention of testicular leukemia as the first relapse included detecting occult leukemic infiltration in biopsy specimens and early stage local treatment with reinduction therapy. (22 Refs) (In JPN)

36. TOXIC EFFECTS OF PREVENTION OF MENINGEAL LEUKEMIA: TWO CASES OF LEUKOENCEPHALOPATHY.

Mandelli F, Antonelli M, Giona F, Loasees A, Montuoro A, Prencipe M, Sideri G
Cattedra di Ematologia, Universita di Roma, Via Chieti, 7, 00161 Rome, Italy
Haematologica (Pavia); 67(2):272-281 1982

Two of 130 children (12-yr-old and 20-mo-old girls) with acute lymphoblastic leukemia developed leukoencephalopathy. All 130 patients had the same treatment (remission induction therapy with vincristine, prednisone and methotrexate intrathecally and cranial or craniospinal irradiation with a total dose of 2,400 rads). Both patients have been in complete first remissions 5 and 3 yr after diagnosis, but presented neurological alterations (spastic tetraparesis and psychomotor changes). (43 Refs) (In ITA)

37. NORMAL SISTER CHROMATID EXCHANGE FREQUENCY IN LONG-TERM SURVIVORS WITH ACUTE LEUKEMIA.

Inoue S, Brown L, Ravindranath Y, Ottenbreit MJ
Children's Hosp. Michigan, Detroit, MI, 48201
Cancer Res; 42(7):2906-2908 1982

We hypothesized that the sister chromatid exchanges assay in acute leukemia long-term survivors may detect: (a) long-term effects of combined chemo- and radiotherapy; and possibly (b) those individuals with inherently deficient DNA repair. Accordingly, we determined the sister chromatid exchanges frequency in 26 blood specimens from 24 acute leukemia long-term survivors (patients) and 14 blood specimens from 13 control subjects (controls). The patients consisted of 23 children with acute lymphocytic and one child with acute myelocytic leukemia. The median length of chemotherapy was 5 years. Eighteen of the 24 patients also received prophylactic fractional central nervous system irradiation for the first 3 years of treatment, and one patient received therapeutic irradiation to the central nervous system. The median off-therapy period at the time of study was 2.5 years with a range of 0 to 7.5 years. The controls consisted of the parents of the patients and laboratory personnel. A mean exchange score per cell was established for each specimen (25 to 30 cells/specimen were scored), and it ranged from 3.0 to 9.7 in the patients and from 3.0 to 11.5 in the controls. A mean +- S.D. calculated from those means was 6.0 +-1.8 for the patients and 6.9 +-2.8 for the controls. They were not significantly different. We conclude that chemo- and radiotherapy produced no persistent DNA alterations detectable by this method. (Author abstract) (20 Refs)

38. INDICATIONS FOR PLATELET TRANSFUSION IN CHILDREN WITH ACUTE LEUKEMIA.

Murphy S, Litwin S, Herring LM, Koch P, Remischovsky J, Donaldson MH, Evans AE, Gardner FH
Cardeza Foundation Hematologic Res., 1015 Walnut St., Philadelphia, PA, 19107
Am J Hematol; 12(4):347-356 1982

In an attempt to determine the indications for platelet transfusion in thrombocytopenic patients, we randomized 56 children with acute leukemia to one of two regimens of platelet transfusion. The prophylactic group received platelets when the platelet count fell below 20,000 per mm3 irrespective of clinical events. The therapeutic group was transfused only when significant bleeding occurred and not for thrombocytopenia alone. the time to first bleeding episode was significantly longer and the number of bleeding episodes were significantly reduced in the prophylactic group. The survival curves of the two groups could not be distinguished from each other. Prior to the last mo of life, the total number of days on which bleeding was present was significantly reduced by prophylactic therapy. However, in the terminal phase (last mo of life), the duration of bleeding episodes was significantly longer in the prophylactic group. This may have been due to a higher incidence of immunologic refractoriness to platelet transfusion. Because of this terminal bleeding, comparison of the two groups for total number of days on which bleeding was present did not show a significant difference over the entire study period. (Author abstract) (6 Refs)

39. FREQUENCY OF EARLY DEATH IN CHILDREN WITH ACUTE LEUKEMIA PRESENTING WITH HYPERLEUKOCYTOSIS.

Wald BR, Heisel MA, Ortega JA
(c/o Ortega) Div. Hematology-Oncology, Childrens Hosp. Los Angeles, Los Angeles, CA, 90027
Cancer; 50(1):150-153 1982

The relationship of hyperleukocytosis, early death, and intracerebral hemorrhage was determined in 547 pediatric patients with acute leukemia. Hyperleukocytosis occurred in 7.3% of patients with acute leukemia. The early mortality rate was significantly increased in hyperleukocytic patients when compared to the nonhyperleukocytic group. Hyperleukocytic patients with ANLL had a significantly greater risk of early death than nonhyperleukocytic patients with ANLL. The difference in the incidence of early death between hyperleukocytic and nonhyperleukocytic patients with ALL/AUL was not statistically significant. In the hyperleukocytic patients intracerebral hemorrhage was the universal cause of early death but this entity did not occur in any of the nonhyperleukocytic patients. There was no correlation of intracerebral hemorrhage to thrombocytopenia or coagulation abnormalities. Autopsies confirmed intracerebral hemorrhage and leukostasis with leukemic infiltration of the brain tissue. (Author abstract) (21 Refs)

40. SUCCESSFUL TREATMENT OF PULMONARY AND CEREBRAL ASPERGILLOSIS IN AN IMMUNOSUPPRESSED CHILD.

Henze G, Aldenhoff P, Stephani U, Grosse G, Kazner E, Staib F
Kinderklinik und Poliklinik, Freien Universitat Berlin, Heubnerweg 6, D-1000 Berlin, W. Germany
Eur J Pediatr; 138(3):263-265 1982

A 12-yr-old boy with CNS relapse of acute lymphoblastic leukemia developed invasive pulmonary and cerebral aspergillosis during antineoplastic treatment. Pulmonary infiltrates completely regressed after treatment with amphotericin B and 5-fluorocytosine. No viable fungi could be detected in a completely resected cerebral abscess after a 4-wk course of antifungal therapy and neurologic symptoms disappeared. The infectious agent may have come from a potted plant in the patient's house. (10 Refs)

OTHER SOLID TUMORS OF CHILDHOOD

41. NASOPHARYNGEAL CARCINOMA IN CHILDHOOD.

Lombardi F, Gasparini M, Gianni C, De Marie M, Molinari R, Pilotti S
Istituto Nazionale per lo Studio e la Cura dei Tumori, Via Venezian 1, 20133 Milan, Italy
Med Pediatr Oncol; 10(3):243-250 1982

We have retrospectively evaluated a series of 27 consecutive children observed from 1965 to 1980 with nasopharyngeal carcinoma (NPC). Histological diagnosis in each patient was undifferentiated carcinoma of nasopharyngeal type (UCNT) with prominent lymphocytic infiltration. Regional node involvement was present in 26 of 27 patients and 2 children presented with distant metastases. Twenty evaluable children with primary nasopharyngeal tumor with or without positive cervical nodes underwent radiotherapy (RT) with uniform criteria in technique. Adjuvant cyclophosphamide (CPM) was administered to a total of 11 children. The actuarial relapse-free survival and overall survival are 40% and 55% at 4 yr, respectively. In this series, the most important prognostic factor was represented by the extent of the tumor in the nasopharynx. Permanent control of the primary tumor was obtained in 85% of patients. CPM given after RT did not reduce the incidence of relapse. However, the fact that 45% of patients developed distant metastases as first treatment failure suggests that combined chemotherapy should be tested in the management of NPC in children, especially when primary tumor is locally advanced. (Author abstract) (39 Refs)

42. PAPILLARY THYROID CARCINOMA IN CHILDHOOD: A REPORT OF 4 PATIENTS.

Fuchs D, Hesse V, Schickedanz H, Stoll W, Katenkamp D, Zintl F, Plenert W
Kinderklinik des Beriechs Medizin, Friedrich-Schiller-Universitat Jena, Kochstrasse 2, DDR-6900 Jena, E. Germany
Kinderaerztl Prax; 50(1):26-35 1982

Papillary thyroid carcinoma in four children (one boy, 8 yr old and three girls, 8, 12, and 14 yr old) is reported. Clinical findings of the thyroid were normal in two children; one child had Grade I goiter with nodes in the right lobe; one child had diffuse Grade I goiter. In all four children the first symptom was swelling of the cervical lymph nodes. The interval between appearance of symptoms and diagnosis was 2-10 mo. All four children were euthyroid. None had had prior radiation exposure of the thyroid. Tumors were staged as T1N1M0. T2N2M0, T3N2M1, and T3N3M0. Primary therapy consisted of subtotal thyroidectomy in one child, subtotal thyroidectomy with removal of suspicious lymph nodes in one child, total thyroidectomy with removal of suspicious lymph nodes in one child, and total thyroidectomy with primary, functional, right neck dissection in one child. Three children received postoperative radioiodine therapy; two of these also received high-voltage radiotherapy. One child received external high-voltage therapy without radioiodine therapy. All four children were free of disease and on substitution hormone therapy 18-36 mo after surgery. (17 Refs) (In GER)

43. HEPATECTOMY IN CHILDREN.

Iwatsuki S, Strazl TE
Dept. Surgery, Univ. Pittsburgh, Sch. Medicine, Pittsburgh, PA, 15261
Int Adv Surg Oncol; 5:163-171 1982

Fourteen children (6 males, 8 females, 11 mo-16 yr old) were treated with subtotal hepatectomy. Ten children had primary malignant liver tumors, 2 metastatic liver tumors, 1 adenoma, and 1 a liver resection for trauma. Eleven of the 12 patients with malignant disease received chemotherapy after hepatic resection, and 4 were given radiation therapy. The agents used for chemotherapy were variable and were influenced by the histopathology. Nine of 10 children survived at least 1 yr. Seven of the 10 children were alive with follow-up periods of 1-7 yr, and 6 of them were disease-free. Eight children (1 yr 7 mo-16 yr old) with primary maligant liver tumors were treated by total hepatectomy and liver replacement (orthotopic liver transplantation). Three children received liver transplantation for end-stage liver disease. Two other children had end-stage liver disease and concomitant primary liver malignancy which was known prior to transplantation. Three children had primary liver malignancy which was not resectable by conventional technique of subtotal hepatectomy. Seven hepatocellular carcinomas and one hepatoblastoma were diagnosed. Transplantation was decided upon as a means of extending the limit of resection. For immunosupression the patients received azathioprine, prednisone, and horse antilymphocyte globulin. One operative death was observed. Five children died with re-

current tumor between 3-15 mo after transplant, after a mean survival of 8 mo. Two children were alive and free of disease 3 yr and 12 yr, respectively, after transplant. In both children, primary liver malignancy was discovered at the pathological examination of the removed organ, and thus the tumors were incidental findings. (15 Refs)

44. HEPATOBLASTOMA: TECHNETIUM SULFUR COLLOID UPTAKE SIMULATING FOCAL NODULAR HYPERPLASIA.

Diament MJ, Parvey LS, Tonkin IL, Johnson KD, Bernstein R, Webber B
Dept. Radiological Sciences, UCLA Medical Center, Los Angeles, CA, 90024
AJR; 139(1):168-171 1982

Hepatoblastomas were misdiagnosed as focal nodular hyperplasia of the liver in two children (3-yr-old boy, 7-yr-old girl) due to uptake of technetium sulfur colloid by lesions. Mechanisms of uptake of colloid are discussed. Differential diagnosis of abnormal regions of sulfur colloid uptake is considered. The results indicated that no combination of scintigraphic findings can definitively establish the diagnosis of focal nodular hyperplasia. It was suggested that all potentially resectable hepatic masses in children should undergo biopsy. (16 Refs)

45. HEMANGIO-ENDOTHELIOMA OF THE LIVER (CASE REPORT).

Zurcher B, Caflisch U, Hofer B, Scharli A, Laissue J
Medizinische Klinik, Kantonsspital, CH-6004 Luzern, Switzerland
Z Kinderchir; 35(1):26-31 1982

Infantile hemangio-endothelioma (IHE) of the liver in a 3.5-mo-old girl is reported. Clinical, scintigraphic, and sonographic findings indicated a malignant hepatic tumor or metastases. Histological examination led to the correct diagnosis. Initial cytostatic therapy produced a blast crisis that ended with termination of therapy. Subsequent oral corticosteroid therapy led to reduction in hepatomegaly and disappearance of hepatic nodes. The patient was in good health 2 yr after diagnosis. Due to the possibility of spontaneous regression, conservative therapy of IHE is recommended. (17 Refs) (In GER)

OTHER RELATED CLINICAL STUDIES

46. PEDIATRIC ONCOLOGY.

Raybaud C, Clement R, Lebreuil G, Bernard JL
Hopital d'Enfants de la Timone, Marseilles, France
Excerpta Med Int Congr Ser (570): 407 pp., 1982.

Neural crest tumors, current clinical trials, and miscellaneous topics, such as leukemia and malignant tumors are discussed. The pathology; clinical features, staging, prognosis; biology; and treatment of neuroblastomas are described. The role of surgery and chemotherapy (cyclophosphamide, melphalan, cisplatin) in the treatment of neuroblastomas is discussed. Malignant peripheral nerve tumors (neurofibromatosis) in children are described. Biological diagnosis and follow-up of medullary thyroid carcinomas and multiple endocrine neoplasia are discussed. Malignant melanoma in children and its response to chemotherapy are considered. Topics considered in relation to pheochromocytomas include vena cava sampling for tumor localization, surgical considerations and multiple localizations of pheochromocytomas in childhood, chromaffin tumors in childhood, paragangliomas, paraganglion cells, and the vagus nerve. Clinical trials related to nephroblastomas, osteosarcomas, medulloblastomas, and rhabdomyosarcomas are described. (260 Refs)

47. ABDOMINAL MASSES IN CHILDREN: MULTIORGAN IMAGING WITH 99MTC METHYLENE DIPHOSPHONATE.

Siddiqui AR, Cohen M, Moran DP
Dept. Radiology, Div. Nuclear Medicine, James Whitcomb Riley Hosp. for Children, Indiana Univ. Medical Center, Indianapolis, IN, 46223
AJR; 139(1):35-38 1982

Technetium-99m methylene diphosphonate (99mTc MDP) imaging was performed in 29 consecutive children with abdominal masses. Dynamic images of the inferior vena cava were obtained by injecting the radiotracer in the feet. Serial renal images were obtained for the next 30 min. Routine bone imaging was performed at about 3 hr. The radionuclide studies of the inferior vena cava accurately diagnosed total obstruction and displacement to the left but not partial obstruction and displacement to the right. The abnormalities on early renal imaging included displacement (14), distortion (7), obstruction (8), and nonvisualization (1). All patients with Wilms tumor (8) had either nonvisualized or distorted renal parenchyma. Patients with neuroblastoma (17) and other tumors (4) had displacement and obstruction. Soft-tissue accumulation of 99mTc MDP was noted in 2 Wilms' tumors and 12 neuroblastoma. (Author abstract) (15 Refs)

48. ULTRASONICS EVALUATION OF ABDOMINAL TUMORS IN CHILDREN.

Fornage B, Roussel B, Daoud S, Munzer M, Behar C
Service de Radiodiagnostic et d'Echographie, Institut Jean-Godinot, 1, rue du General Koenig, 51100 Reims, France
Ann Pediatr (Paris); 29(5):329-334 1982

Ultrasound examination was used diagnostically for 28 children (15 boys and and 13 girls 2 days to 17 yr old) with abdominal tumors. Histological confirmation was obtained 26x whereas in two cases, the diagnosis was able to be established only on specific biological tests. Ultrasound provided correct diagnoses for nephroblastoma (7), sympathoblastoma (5), multicystic dysplasia (5), hydronephrosis (3), Pepper's syndrome (2) and hydatid liver cyst (1). The overall accuracy of ultrasound was 89%. False diagnoses occurred in 1/2 cases of teratoma, 1/1 hepatic hamartoma and 1/1 rhabdomyosarcoma. Ultrasonography was considered particularly useful in infants, and the procedure shortened the diagnostic sequence by giving accurate images of the tumor's limits, size, contents, and origin. Ultrasound was a safe and reliable method for monitoring abdominal tumors during treatment and for follow-up of patients following treatment. (6 Refs) (In FRE)

49. PATHOGENESIS OF CONGENITAL TUMORS AND MALFORMATIONS OF THE SACROCOCCYGEAL REGION.

Lemire RJ, Beckwith JB
Dept. Pediatrics, Univ. Washington Sch. Medicine, Seattle, WA, 98105
Teratology; 25(2):201-213 1982

The possible relationship between embryological malformations occurring in the sacrococcygeal region and neoplasia is discussed and illustrated in 142 patients with tumors (32), malformations (49), or 'tumor vs malformation' (61). The various

types of lesions included in this study presented a remarkable degree of histological similarity. It was rarely possible to make a diagnosis from microscopic sections alone. Epidermal sinuses were found in association with virtually all types of lesions studied. Tumors observed in this series included aneurysmal bone cyst, chondroma, chondrosarcoma, chordoma, neurofibroma, ependymoma, fibrosarcoma, giant cell tumor of the sacrum, leiomyoma, lymphoma, osteogenic sarcoma, rhabdomyosarcoma, liposarcoma, mesenchymoma, Wilms' tumor in teratoma, paraganglioma, and glomus tumor. Cutaneous sinuses and cysts were observed in association with sacrococcygeal teratomas. Mature adipose tissue was the predominant and sometimes only major constituent of lipomas. Adipose tissue was the predominant element in many of the teratomas as well. Ependymal cells regularly formed the lining of myelocystocele, where they sometimes appeared mature and sometimes resembled the primitive ependymal layer of the embryonic neural tube. Papillary ependymal formations resembling choroid plexus were commonly seen, especially in teratomas. CNS tissues, usually consisting of irregular islands of neural and glial elements admixed with fibrous connective tissue, were found not only in myelocystocele but also within lesions thought clinically to be lumbosacral lipomas. CNS tissues were a predominant element in most of the sacrococcygeal teratomas of this series. Development of the caudal neural tube and surrounding structures is discussed. (59 Refs)

50. DELAYED-HYPERSENSITIVITY SKIN TESTING AND CHILDHOOD CANCER.

Munzarova M, Kubikova-Kourilova A, Kolcova V
Res. Inst. Clinical and Experimental Oncology, Zluty Kopec 7, 602 00 Brno, Czechoslovakia
Br J Cancer; 45(6):968-970 1982

Records of children with different malignant diseases, who underwent 'Calmettization', were compared with records of children of similar age to determine if abnormalities in skin response to tuberculin were present in children who subsequently developed malignant diseases. The malignancy group included 189 children (108 boys, 81 girls; 6 mo-15 yr old) who developed leukemias (46 children), Hodgkin's lymphomas (10), non-Hodgkin's lymphomas (7), Wilms' tumors (22), neuroblastomas (12), retinoblastomas (23), brain tumors (34), sarcomas (13), teratomas and germinomas (6), or other neoplasms (16). Capability for tuberculin immune response and the immunological memory for the antigen preceding the appearance of malignant disease showed no differences between children who developed neoplasms and those who did not. (6 Refs)

51. ULTRASTRUCTURAL FINDINGS IN THE LIVER OF LONG-SURVIVING CHILDREN AFTER POLYCHEMOTHERAPY.

Hegewald G, Reddemann H, Barenwald G, Schwantengel H
Pathologisches Institut, Ernst-Moritz-Arndt-Universitat Greifswald, Friedrich-Loeffler-Str. 23e, DDR-2200 Greifswald, E. Germany
Arch Geschwulstforsch; 52(5):397-405 1982

Ultrastructural examinations were performed on liver biopsy tissue from 14 children (1-14 yr old at time of diagnosis) who survived a mean 5 yr after initiation of chemotherapy of malignant disease. The children included four with acute lymphocytic leukemia, three with Wilms' tumor, three with Hodgkin's disease, and one each with thoracic neuroblastoma, rhabdomyosarcoma, undifferentiated blastoma, and reticulosis. At the time of the study, all children were free of disease, with a therapy-free interval of 2.5 yr. Treatment had consisted of tumor extirpation, telecobalt irradiation, and polychemotherapy, varying in individual cases according to disease. Cytostatic agents employed included vincristine sulfate, cyclophosphamide, natulan, actinomycin D, methotrexate, and adriablastin. Therapy lasted 24-36 mo. All children had shown signs of liver pathology during therapy but were free of clinical signs at the time of study. Findings were the same in all children, regardless of disease. Light microscopic examination showed low-grade hydropic to vacuolar degeneration of hepatocytes, discrete adipose degeneration of the hepatic parenchyma, and in two children mobilization of the active mesenchyme with low-grade histolymphocytic reaction in the portal regions. Ultrastructural changes included fine vesicular transformation of the smooth endoplasmic reticulum, increase in accumulations of glycogen, and increased lipofuscin granules in the hepatocytes. Rosette-shaped glycogen formations were found in some nuclei; no other alterations were found in the nuclei. Changes in hepatocytes were attributed to increased metabolic efficiency of the cells. No evidence of chronic, therapy-related liver damage was found. (38 Refs) (In GER)

52. THE EMERGENCE OF 6-THIOGUANINE-RESISTANT LYMPHOCYTES IN PEDIATRIC CANCER PATIENTS.

Lange BJ, Prantner JE
Div. Oncology, Children's Hosp. Philadelphia, Philadelphia, PA, 19104
Mutat Res; 94(2):487-499 1982

Emergence of 6-thioguanine (6TG)-resistant peripheral blood lymphocytes was studied in children and adolescents with Hodgkin's disease (HD) and sarcomas (SA) to investigate the role of chemotherapy, radiation therapy, and other variables including the 6TG-resistant phenotype. The study was conducted as a prospective study in which blood was taken from 22 patients prior to any antitumor therapy and at least 4 days after surgery and general anesthesia, and as a cross-sectional longitudinal study in which lymphocytes were first examined from 51 patients who were already receiving therapy and then at various times during or after therapy. As a group, the HD patients prior to therapy were not statistically significantly different from the controls although five patients had a variant frequency above the level of the highest control. During therapy both the median labeling index in phytohemagglutinin (PHA) was lower than that of controls and median variant frequency was higher than control levels. However, the relative increase in 6TG-resistant variant frequency of patients on therapy was not adequately accounted for by relatively lower labeling index in PHA. SA patients did not show a significant reduction in median labeling index in PHA during therapy. Nonetheless the patients showed a significantly higher median 6TG-resistant variant frequency than controls both during and after therapy. In the prospective study, 20/22 patients showed an increase in frequency of 6TG-resistant lymphocytes during therapy; two of the samples were higher than the highest pretherapy value for the entire group of 22 patients. Results showed that some cancer patients have abnormally high frequencies of 6TG-resistant lymphocytes, and cancer therapy either causes selection of 6TG-resistant cells or causes a phenotypic or genotypic change leading to further increases in frequencies of 6TG-resistance. (35 Refs)

53. UNUSUAL NON-METASTATIC NODULES IN THE LUNGS OF CHILDREN WITH CANCER.

Cohen M, Slabaugh R, Smith JA
Dept. Radiology, James Whitcomb Riley Hosp. for Children, Indiana Univ. Sch. Medicine, 1100 West Michigan St., Indianapolis, IN, 46223
Clin Radiol; 33(1):57-59 1982

The recognition of unusual non-metastatic causes of lung nodules in children with cancer is important. Appropriate therapy depends on an accurate diagnosis. Four patients are presented with lung nodules due to round pneumonia, round atelectasis, radiation pneumonitis and inflammatory pseudotumor. Clinical and radiographic features of these disorders are discussed. Awareness of these uncommon nodules is important if they are to be diagnosed accurately. (Author abstract) (11 Refs)

54. FEVER IN THE PEDIATRIC AND YOUNG ADULT PATIENT WITH CANCER. A PROSPECTIVE STUDY OF 1001 EPISODES.

Pizzo PA, Robichaud KJ, Wesley R, Commers JR
NCI, Building 10, Room 13C101, Bethesda, MD, 20205
Medicine (Baltimore); 61(3):153-165 1982

Cytotoxic chemotherapy has improved the survival of cancer patients but has also increased the risk for serious infectious complications. We have evaluated 1,001 febrile episodes in 324 patients during a 5-yr study period. The underlying malignancies included leukemia lymphoma (17%) and solid tumors. Fever occurred in 39.8% of patients receiving cytotoxic chemotherapy. Once febrile (F+) patients were evaluated and then stratified according to whether they were granulocytopenic (G+) of the F+ episodes occurred when patients were nongranulocytopenic, of which only 17.3% were associated with infection. At least 75% of the F+G+ episodes were due to a defined or occult infection. In 51.8% of these, an infectious etiology could be diagnosed initially or within a 7-day follow-up. Infections of the respiratory tract or blood stream accounted for 62.5% of all documented infections and 85% of all microbiologically-defined infections were due to bacteria. There was no difference in the types of infections or infectious organisms in the different malignancies, suggesting that once granulocytopenic, these patients share a comparable risk for serious infections. An infectious etiology could not be initially defined in 48.2% of the 793 F+G+ episodes. Of these, 55.5% were associated with granulocyte recovery within 1 wk and none of these low risk FUO episodes were associated with subsequent infectious complications. However, infectious complications occurred in half of the high-risk FUO episodes when antibiotics were discontinued after 7 days of empiric therapy, suggesting that undetected infections are important in patients with protracted granulocytopenia. For the present, regardless of their underlying malignancy or clinical presentation, initiation of empiric antibiotics in any granulocytopenic patient who becomes febrile continues to be necessary. (30 Refs)

55. VARICELLA-ZOSTER-IMMUNOGLOBULIN AS A SAFE PROPHYLAXIS OF VARICELLA.

Kornhuber B, Kropp H, Ribeiro-Ayeh J, Hinderfeld L, Welte K
Zentrum der Kinderheilkunde, Abteilung fur Padiatrische Hamatologie und, Onkologie Klinikum der Johann Wolfgang Goethe-Universitat, Theodor-Stern-Kai 7, D-6000 Frankfurt/Main 70, W. Germany
Monatsschr Kinderheilkd; 130(1):27-29 1982

Varicella immunoglobulin was administered on 298 occasions to children undergoing chemotherapy of malignant diseases after exposure to varicella. No serious side effects were observed. Varicella infections developed in four children; three of these infections were mild. No disabling varicella infections developed in any of the children. The immunoglobulin tested was more effective than other currently available methods of prophylaxis. (16 Refs) (In GER)

56. TRIMETHOPRIM-SULFAMETHOXAZOLE THERAPY FOR PNEUMOCYSTIS CARINII PNEUMONITIS IN CHILDREN.

Hughes WT
Div. Infectious Diseases, St. Jude Children's Res. Hosp., Memphis, TN, 38101
Rev Infect Dis; 4(2):602-607 1982

Use of trimethoprim-sulfamethoxazole (TMP-SMZ) for treatment and prevention of Pneumocystis carinii pneumonitis in cancer patients is reviewed. Fifty patients were given either pentamidine isethionate (PAI) or TMP-SMZ; 20/26 initially given TMP-SMZ recovered and 18/24 initially given PAI recovered. However, 14/15 given PAI developed abnormal levels of blood urea nitrogen or creatine and glucose in serum and/or inflammation at injection sites, while only 1/17 given TMP-SMZ developed such side effects. When compared with placebo, 0/80 children given TMP-SMZ developed P carinii pneumonitis, while 17/80 given the placebo did. Compared with controls, the only significant side effect of TMP-SMZ was oral candidiasis. When used for prophylaxis, annual rates of P carinii pneumonitis within a hospital population were reduced from 4-6% without TMP-SMZ to 0.08%. Studies with the immunosuppressed rat model demonstrated that TMP-SMZ has a limited rather than a lethal effect on P carinii and protection is afforded only during the administration of the drug combination. Optimal ranges appear to be peak serum levels of 3-5 ug of TMP/ml and 100-150 ug of SMZ/ml. Prophylactic doses of the drug can apparently be safely administered for periods of several yr to immunocompromised children receiving anticancer drugs. Unanswered questions concerning the use of TMP-SMZ are discussed. (20 Refs)

57. LARGE-DOSE COMBINATION THERAPY OF ANTIBIOTICS FOR SEVERE INFECTION DURING NEUTROPENIA IN HEMATOLOGIC DISEASE IN CHILDREN: BASED ON TICARCILLIN THERAPY.

Kishida K, Miyazaki S, Yoshida N, Shingaki Y, Goya N
Infectious Disease Center, Fukuoka Municipal Children's Hosp. Medical Center, Fukuoka, Japan
Nippon Kagaku Ryoho Gakkai Zasshi; 30(2):182-188 1982

Seventeen instances of severe infections were observed in nine children with hematological diseases. The treatment included Ticarcillin, aminoglycosides, cefazoline, and fosfomycin in combination or alone. The hematological diseases included acute myelocytic leukemia, acute promyelocytic leukemia, acute lymphocytic leukemia, aplastic anemia, Wilms' tumor, and neuroblastoma. Excellent or good responses were observed in 14/17 instances. No marked side effects were observed. (21 Refs) (In JPN)

58. ORAL/DENTAL CARE FOR THE PEDIATRIC ONCOLOGY PATIENT.

Toth BB, Hoar RE
Dept. Dental Oncology, Univ. Texas, M. D. Anderson Hosp. and Tumor Inst., Houston, TX
Cancer Bull; 34(2):66-71 1982

Dealing with dental complications which occur subsequent to aggressive treatment in the pediatric cancer patient is discussed. Emphasis is placed upon acute and latent effects of chemotherapy and radiotherapy on the oral mucosa, dento-alveolar bone complex, and associated oral structures. The oral cavity is frequently affected by chemotherapeutic agents which are not selectively toxic to cancer cells. Complications occur as the result of direct action on the mucosal epithelium or indirect myeloimmunosuppression. Radiographic examinations should include a panographic radiograph, bitewings, and periapical films to rule out pathological processes and to provide a baseline reference for further evaluations. The patient with mixed dentition should be reevaluated prior to each chemotherapeutic treatment. Dentition must be evaluated and the exfoliation time of the teeth estimated to avoid hemorrhage and infection caused by mobility of primary and erupting adult teeth, which have sharp, irregular, resorbing roots. Mobile deciduous teeth should be removed. Lip care is very important since intraoral examinations can be made difficult by dry, ulcerated lips. Frequent treatment with Surgi-Lube or lanoline is preventive. Therapeutic measures which can be taken to ameliorate a range of postchemotherapeutic and radiotherapeutic complications are described. (no Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

59. HEREDITARY FACTORS IN CHILDHOOD CANCER.

Lynch HT
Dept. Preventive Medicine/Public Health, Creighton Univ. Sch. Medicine, Omaha, NE, 68178
Paediatrician; 11(3/4):205-221 1982

An epidemiological approach to the problem of childhood cancer genetics is presented with attention to interaction with the environment and host factors. A traditional approach to etiology employs population surveys. One study disclosed that differences between experimental and control subjects were subtle. Other subjects discussed include immunodeficiency disease and cancer, salient characteristics of hereditary cancer (HC), predictability of HC, genetic heterogeneity, maternal effect, familial atypical multiple mole melanoma syndrome, biological nuances of HC (spontaneous regression), teratogens and carcinogens (etiologic relationship), and national cancer family registries. A discussion is presented on Wilms' tumor (WT) as a reference tumor for comparison of the frequency of other childhood cancers. International comparisons of WT with retinoblastoma (including neuroblastoma) have been made. The variation noted in the various series for WT was not fully explained. According to the Knudson hypothesis, the occurrence of the hereditary variety of the two lesions would require a germinal mutation. The study indicates that careful attention should be given to the role of environmental factors. (40 Refs)

60. PRENATAL FACTORS IN THE AETIOLOGY OF TESTICULAR CANCER: AN EPIDEMIOLOGICAL STUDY OF CHILDHOOD TESTICULAR CANCER DEATHS IN GREAT BRITAIN, 1953-73.

Swerdlow AJ, Stiller CA, Wilson LM
Oxford Regional Health Authority, Birmingham, England
J Epidemiol Community Health; 36(2):96-101 1982

A case-control study of 87 reported deaths of boys from testicular cancer between 1953 and 1973 is presented. A peak of childhood testicular cancer mortality was found at age 2 yr and a sharp rise was seen at age 15 yr. Risk of testicular cancer was not significantly related to social class or age of parents at the patient's birth. Relative risk increased for boys of mothers who had a previous stillbirth, however this increase was not statistically significant. Significantly raised risks were found for boys of mothers with tuberculosis during pregnancy or epileptic mothers. Both epileptic mothers were taking phenobarbitone during the index pregnancy and one was also taking phenytoin. Significantly increased risks were also seen for boys whose mothers had cystitis in pregnancy; however, the raised risk was less and nonsignificant for any urinary tract infection recorded during pregnancy, which were cystitis or renal infections. Other factors with raised, but not significantly, risks were hyperemesis in the index pregnancy and hernia and genitourinary defects in the child. While the incidence and mortality from testicular cancer in children are not increasing in Britain and other countries, an increasing trend has been reported in young adults in several developed countries. The secular increase in the rates of young adult testicular cancer may be due to factors that affect adults but not children, and are most likely prenatal. (27 Refs)

61. FAMILIAL T-CELL LYMPHOBLASTIC LYMPHOMA: ASSOCIATION WITH VON RECKLINGHAUSEN NEUROFIBROMATOSIS AND GARDNER SYNDROME.

Kaplan J, Cushing B, Chang CH, Poland R, Roscamp J, Perrin E, Bhaya N
Children's Hosp. Michigan, 3901 Beaubien Blvd., Detroit, MI, 48201
Am J Hematol; 12(3):247-250 1982

A family is described in which three of seven siblings developed a T-cell lymphoblastic lymphoma. Tumor cells formed rosettes with sheep erythrocytes, lacked surface Ig, and expressed human T- but not B-lymphocyte antigens. They lacked the enzyme terminal transferase suggesting a lymph node rather than thymic T-cell origin. Autopsy findings supported this conclusion. All three sibs, like their father, had numerous cafe au lait spots indicative of Von Recklinghausen neurofibromatosis. One child had a sc fibroma, and another had multiple colonic polyps and exostoses characteristic of Gardner syndrome. Both are autosomal dominant conditions known to predispose to malignancies. The genetic factors responsible for these conditions may also predispose to the development of 'post-thymic' T-cell lymphoblastic lymphoma. (Author abstract) (10 Refs)

62. EVOLUTION OF INFECTIOUS MONONUCLEOSIS INTO EPSTEIN-BARR VIRUS CARRYING MONOCLONAL MALIGNANT LYMPHOMA.

Abo W, Kamada M, Motoya T, Aya T, Nakao T, Takada K, Imamura M, Iwanga M, Yano S, Osato T

(c/o Osato) Dept. Virology, Cancer Inst., Hokkaido Univ. Sch. Medicine, Sapporo 060, N15 W7, Japan

Lancet; 1(8284):1272-1276 1982

A monoclonal malignant lymphoma was diagnosed in a 30-mo-old Japanese boy, who, since the age of 12 mo, had had chronic, recurrent infectious mononucleosis manifested by repeated episodes of severe cough and high fever accompanied by marked lymphadenopathy and hepatosplenomegaly and high serum Epstein-Barr virus (EBV) antibody titers. The diagnosis of Burkitt's lymphoma was made when a cervical lymph-node biopsy specimen revealed massive proliferation of immature B-cells with starry-sky histiocytes. These lymph-node cells were characterized by a translocation between chromosomes 10 and 17. There were approx 9 EBV genome-equivalents per cell. Most cells were positive for nuclear antigen (EBNA); early antigen (EA) and viral capsid antigen (VCA) were also detected. The presence of EBV was supported by the finding that the cell-free lymph-node extract transformed cord-blood lymphocytes into EBNA-positive blast cells. The proportion of EA-positive and VCA-positive cells increased rapidly in culture for 24 hr, then the positive cells degenerated rapidly and completely. The cells also contained numerous herpes-type virus particles. The child improved considerably with cytostatic treatment and has been in remission for 2 yr. (Author abstract) (23 Refs)

63. ACUTE MYELOID LEUKEMIA AS THE FIRST HEMATOLOGIC MANIFESTATION OF FANCONI ANEMIA.

Auerbach AD, Weiner MA, Warburton D, Yeboa K, Lu L, Broxmeyer HE

Lab. Investigative Dermatology, Rockefeiler Univ., 1230 York Ave., New York, NY, 10021

Am J Hematol; 12(3):289-300 1982

A 6-yr-old girl with Fanconi anemia (FA) developed acute myeloid leukemia (AML) as the first hematologic manifestation of the syndrome. She remains in remission 18 mo after diagnosis although her management is complicated by unusual sensitivity to chemotherapeutic agents. Marrow cells studied prior to initiation of leukemia therapy showed increased chromosome breakage and an abnormal clone in which a number 7 and a number 8 chromosome were replaced by two marker chromosomes. During the present remission her cultured lymphocytes, bone marrow cells, and fibroblasts showed increased 'spontaneous' chromosome breakage as well as enhanced sensitivity to the clastogenic effect of the difunctional alkylating agent diepoxybutane (DEB), features characteristic of FA. Eight mo into remission 50% of her marrow cells comprised an abnormal clone, which was monosomic for the number 7 chromosome but had both copies of number 8; in addition a variable number of unique marker chromosomes were present in clonal as well as nonclonal cells. This same marrow sample, upon culture, showed an abnormal growth pattern of CFU-GM, absence of detectable CFU-GEMM and BFUe, non-responsiveness of CFU-GM to inhibition by acidic isoferritins, increased bone marrow acidic isoferritin inhibitory activity, and absence of detectable bone marrow cell-derived GM-CSF. The implications of these findings to leukemogenesis in FA are discussed. (Author abstract) (40 Refs)

AUTHOR INDEX WITH CITATION NUMBERS

Abelanet R. 10
Abo W. 62
Akane H. 32
Aldenhoff P. 40
Antonelli M. 36
Aplevich NN. 16
Arakawa T. 22
Arndt S. 19
Auerbach AD. 63
Aya T. 62
Baba Y. 23
Bang G. 15
Barenwald G. 51
Bartolozzi G. 7
Bayle C. 27
Beardwell CG. 25
Becker J. 29
Beckwith JB. 49
Behar C. 48
Bennett AJ. 33
Benoist MR. 8
Bernard A. 30
Bernard JL. 46
Bernstein R. 44
Besser A. 4
Bessho F. 35
Bhaya N. 61
Bishop AJ. 34
Boumsell L. 30
Brach dell Prev. 7
Brown L. 37
Broxmeyer HE. 63
Brunat-Mentigny. 28
Bryon PA. 28
Bukhny AE. 16
Cadier L. 18
Caflisch U. 45
Caillou B. 27
Cairo MS. 34
Camacho A. 24
Carli M. 17
Carli M. 7
Castello M. 7
Ceci A. 17
Ceci A. 7
Chang CH. 61
Chassagne J. 30
Cich JA. 34
Clausen N. 31
Clement R. 46
Coccia PF. 34
Cohen M. 47
Cohen M. 53
Colella R. 17
Commers JR. 54
Cordero di Mont. 7
Cozzutto C. 17
Cushing B. 61
Dahl O. 15
Daoud S. 48
De Bernardi B. 17
De Marie M. 41
Deakin DP. 25
Demakas JJ. 21
Demeocq F. 30
Devens K. 5
Diament MJ. 44
Diard F. 18
Doll R. 19
Donaldson MH. 38
Dorffel W. 20
Dzhalalov MD. 16
Edson JR. 33
Eife R. 5
Ein SH. 3
Engedal H. 15
Erichsen G. 11
Evans AE. 38
Fornage B. 48
Fossati-Bellani. 7
Freycon F. 28
Fuchs D. 42
Fujiu M. 35
Fukuzaki M. 23
Garcia I. 24
Gardner FH. 38
Gasparini M. 41
Gehan EA. 2
Gerard-Marchant. 27
Gerard-Marchant. 28
Gianni C. 41
Giona F. 36
Godin VP. 16
Gohler I. 20
Gothlin J. 15
Goya N. 57
Grosse G. 40
Guazzelli C. 7
Gubler JP. 10
Haas RJ. 5
Hassler A. 20
Hausner H. 5
Hays DM. 2
Hegewald G. 51
Heisel MA. 39
Helmig FJ. 5
Helmig M. 5
Henze G. 40
Herring LM. 38
Hertz H. 11
Hesse V. 42
Hinderfeld L. 55
Hoar RE. 58
Hofer B. 45
Horrig C. 14
Hughes WT. 56
Iguchi K. 32
Imamura M. 62
Inoue S. 37
Iwamasa T. 13
Iwanga M. 62
Iwatsuki S. 43
Izawa T. 32
Janin Y. 29
Janka GE. 5
Jean R. 8
Jimenez E. 24
Jimenez R. 24
Johnson KD. 44
Jurgenssen OA. 1
Kamada M. 62
Kamper J. 11
Kaplan AM. 21
Kaplan J. 61
Katenkamp D. 42
Kazner E. 40
Kelley JJ. 21
Kishida K. 57
Koch P. 38
Kochergina NV. 16
Kolcova V. 50
Kornhuber B. 55
Koshechkina NA. 9
Krause H. 19
Krivit W. 33
Kropp H. 55
Kubikova-Kouril. 50
Laissue J. 45
Lampert F. 5
Lange BJ. 52
Lebreuil G. 46
Lemerle J. 30
Lemerle J. 8
Lemire RJ. 49
Lenoir GM. 28
Levitt CJ. 34
Lindberg RD. 2
Litwin S. 38
Lo Curto M. 7
Loasses A. 36
Lobo-Sanahuja F. 24
Lombardi F. 41
Louhimo I. 6
Lu L. 63
Lunde OD. 15
Lynch HT. 59
Madon E. 17
Madon E. 7
Maeyama M. 13
Mancer K. 3
Mancini A. 17
Mandelli F. 36
Marchi A. 7
Massclo F. 7
Masuyama Y. 23
Mateev J. 20
Matsuda T. 32
Matsuura K. 13
Mella O. 15
Metz O. 20
Minei M. 22
Miyazaki S. 57
Molinari R. 41
Montuoro A. 36
Moran DP. 47
Mori PG. 7
Morris Jones PH. 25
Motoya T. 62

Munemura M. 13
Munzarova M. 50
Munzer M. 48
Murphy S. 38
Nakamura T. 13
Nakao T. 62
Neumarker KJ. 19
Nielsen ES. 11
Nishimoto Y. 23
Nishioka K. 32
Nørgaard-Peders. 11
Ohnishi Y. 22
Ortega JA. 12
Ortega JA. 39
Osato T. 62
Ottenbreit MJ. 37
Pablucci G. 17
Pablucci G. 7
Parvey LS. 44
Pastore G. 17
Pastore G. 7
Paupe J. 8
Pedersen H. 31
Perrin E. 61
Philip T. 28
Philippe N. 28
Pianca C. 7
Pichler E. 1
Pilotti S. 41
Pizzo PA. 54
Plaine R. 30
Plenert W. 42
Poland R. 61
Prantner JE. 52
Prencipe M. 36
Priest JR. 33
Priest JR. 34
Raffensperger J. 4
Ragab AH. 2
Ramsay NK. 33
Ramsay NK. 34
Raney RB. 2
Ravindranath Y. 37
Raybaud C. 46
Rebuffi L. 17
Reddemann H. 20
Reddemann H. 51
Reinartz G. 1
Remischovsky J. 38
Ribeiro-Ayeh J. 14
Ribeiro-Ayeh J. 55
Richard Y. 30
Robichaud KJ. 54
Rosa B. 10
Rosati M. 7
Roscamp J. 61
Roussel B. 48
Royon M. 10
Rufin P. 8
Ruymann FB. 2
Sakurai M. 32
Sawada A. 23
Scharli A. 45
Scheinmann P. 8
Schickedanz H. 42
Schneider K. 29
Schwanengel H. 51
Schwartz D. 29
Sell A. 11
Shalet SM. 25
Shandling B. 3
Shibata H. 23
Shingaki Y. 57
Siddiqui AR. 47
Sideri G. 36
Sitarz AL. 34
Skovby F. 26
Slabaugh R. 53
Smith JA. 53
So H. 29
Sogaard H. 11
Sokolova IN. 9
Sonntag VK. 21
Souillet G. 28
Soule EH. 2
Staib F. 40
Steinherz PG. 34
Stephani U. 40
Stiller CA. 60
Stoll W. 42
Strazl TE. 43
Stringel G. 3
Sullivan MP. 26
Swerdlow AJ. 60
Takada K. 62
Tamaro P. 17
Tamaro P. 7
Tanimoto Y. 32
Todt H. 20
Tonkin IL. 44
Toth BB. 58
Trigg ME. 34
Tubergen DG. 34
Tygstrup I. 11
Vargas G. 24
Viallard JL. 30
Volkova LD. 9
Waggener JD. 21
Wald BR. 39
Walther A. 14
Warburton D. 63
Wasiljew BK. 4
Webber B. 44
Weinblatt ME. 12
Weiner MA. 63
Welte K. 55
Wesley R. 54
White L. 34
Whitehead E. 25
Wikstrom S. 6
Wilson LM. 60
Wise L. 29
Yamana Y. 22
Yano S. 62
Yeboa K. 63
Yoshida N. 57
Yssing M. 11
Zastrow J. 20
Zintl F. 42
Zurcher B. 45

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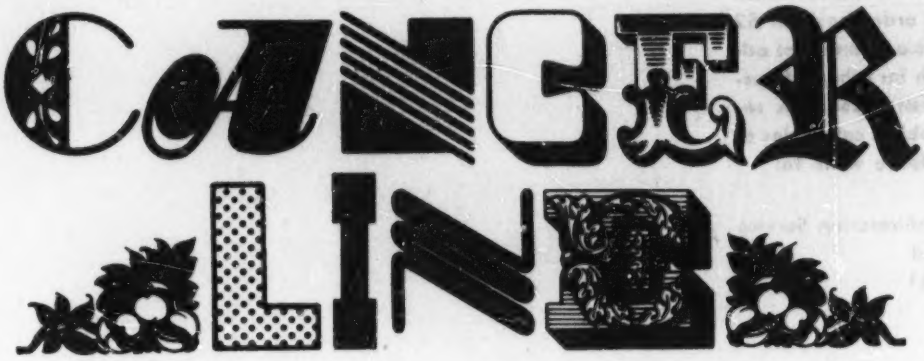

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In this issue:

- RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS..... 1-3
- WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS..... 4-8
- NEUROBLASTOMAS AND CNS TUMORS..... 9-12
- LYMPHOMAS AND LEUKEMIAS..... 13-22
- OTHER SOLID TUMORS OF CHILDHOOD..... 23-25
- OTHER RELATED CLINICAL STUDIES..... 26-28
- SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS..... 29

RHABDOMYOSARCOMAS AND OTHER SOFT TISSUE TUMORS

1. INTRATHORACIC SOFT TISSUE SARCOMAS IN CHILDREN.

Crist WM, Raney RB, Newton W, Lawrence W, Tefft M, Foulkes MA
Children's Hosp., 1601 6th Ave. South, Birmingham, AL, 35233
Cancer; 50(3):598-604 1982

Seventeen of 646 (2.6%) children registered on the Intergroup Rhabdomyosarcoma Study (IRS)-I and pilot study for IRS-II as of December 1977, had apparent intrathoracic primary soft tissue sarcomas. The primary tumor appeared to arise in the mediastinum in 10 patients, the pleura in 4, and the lung in 3. The age range was 1-20 yr (mean, 9.9 yr), and the male/female ratio was 1.8. Tumor histologic type was embryonal in seven, alveolar in five, undifferentiated in four, and extraosseous Ewing's (EOE) in one. Fourteen patients (82%) had unresectable disease at presentation, while 3 had grossly resected disease. These children were treated according to the IRS-I15 or a subsequent pilot study protocol. Nine of 15 patients (60%) completing induction therapy achieved a complete

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remission (CR) and 3 a partial remission (PR) (CR + PR rate 80%). Two of three patients with grossly resected disease (Groups I or II) are long term survivors (4+ yr), while only 1 of 10 (10%) who had unresectable gross residual disease after surgery (Groups III or IV) is known to be surviving free of disease more than 2 yr. We conclude that the 'group' dependent survival experience of patients with intrathoracic primaries appears similar to that observed in the IRS-I Study as a whole, but that this particular primary site is associated with advanced disease at presentation and its attendant high mortality with the treatment used. Additionally, intrathoracic primary tumors occurred in older children and were more likely to be of undifferentiated histologic types than tumors from most other primary sites. (Author abstract) (12 Refs)

2. THE INTERGROUP RHABDOMYOSARCOMA STUDY.

Maurer HM, Crist WM, Donaldson M, Gehan A, Hammond D, Hays DM, Heyn R, Lawrence W, Lindberg R, Newton W, Ragab A, Raney RB, Ruymann F, Soule EH, Sutow WW, Tefft M, Wharam M

Dept. Pediatrics, Children's Medical Center, Medical Coll. Virginia, Virginia Commonwealth Univ., Richmond, VA

Cancer Bull; 34(3):108-110 1982

Clinical and therapeutic aspects of treatment strategies for rhabdomyosarcomas of childhood are reviewed. The age distribution of registered patients showed a peak between 1-5 yr, with 70% of patients younger than 10 yr of age at diagnosis. The percentage of each rhabdomyosarcoma subtype was: embryonal 62%; alveolar 16%; botryoidembryonal 8%; pleomorphic 1%; extraosseous Ewing's sarcoma, large cell and small cell types 7%; and small cell mesenchymal sarcoma, type indeterminate 6%. Significant prognostic factors include clinical group, primary site, tumor histology, tumor size, gender (males being unfavorable), lymphocyte count at diagnosis (low count being unfavorable), and recurrence. Postoperative irradiation of the tumor bed was unnecessary for patients who received standard vincristine, dactinomycin, and cyclophosphamide (VAC) chemotherapy for 2 yr after complete resection of a localized tumor (clinical Group I disease). For patients with regional disease grossly resected, but with microscopic evidence of residual disease and/or lymph node involvement or with completely resected regional disease including involved regional nodes (clinical Group II), the combination of vincristine and dactinomycin for 1 yr was just as good as the standard VAC therapy for 2 yr, all patients having received postoperative radiotherapy to the tumor bed. CNS prophylactic irradiation prevented meningeal spread and improved survival in patients with intracranial tumor extension. (22 Refs)

3. SOFT-TISSUE SARCOMAS IN CHILDHOOD.

Bolkenius M, Brandeis WE, Daum R, Roth H, Schutze U

Kinderchirurgische Abteilung des Chirurgischen Zentrums, Universitat Heidelberg, Im Neuenheimer Feld, D-6900 Heidelberg, W. Germany

Langenbecks Arch Chir; 357(1):27-33 1982

Of 477 patients with soft-tissue sarcomas treated over a 30-yr period, 87 were children under 14 yr old. Excluding hemoblastoses and CNS tumors, the most common type of soft-tissue tumor was Wilms' tumor (22% of cases). Tumors included 6 fibrosarcomas, 24 rhabdomyosarcomas, 2 liposarcomas, 9 angiosarcomas, 1 malignant hemangioendothelioma, 6 hemangiopericytomas, 4 synovial sarcomas, 2 melanosarcomas, 20 spindle-cell/round-cell sarcomas of undetermined origin, and 13 undifferentiated sarcomas of undetermined origin. After the initiation of combined surgical, radiological, and chemotherapeutic treatment (in the last 10 yr of the period reported), prognosis was better for tumors with a grade typical of pediatric tumors and for those tumors detected in the early stages. Initiation of combined therapy increased the survival rate from 29% to 58%. No significant differences in the course of myoblastic or angioblastic sarcomas was evident between infants and school-age children. For tumors of the same histologic type, prognosis depended on the grade, size, and localization of the tumor. Rhabdomyosarcomas showed a marked tendency to occur in the head and neck (30% of patients). Combined therapy of these tumors made possible the avoidance of disfiguring surgery. For tumors of the genital region, surgical extirpation was less disfiguring than radiotherapy. Angioblastic sarcomas were classified as of low or high malignancy. Unlike other types of tumors, however, a low mitotic index was not an indicator of low malignancy. (17 Refs) (In GER)

WILMS' TUMORS, NEPHROMAS, AND UROGENITAL TUMORS

4. WILMS TUMOR IN CHILDREN.

Durnov LA, Bukhny AF, Saltanov AI, Lebedev VI, Sotnikova EN, Tsygankin VI

Center for Oncology Res., USSR Acad. Medical Sciences, Moscow, USSR

Vopr Onkol; 28(5):109-115 1982

An evaluation of 388 cases of Wilms tumor within 13 yr established a high proportion of advanced cases among children: Stage II -30.6; III -35.4; IV -27.6 and V (bilateral) -6.4%. Main homeostatic indices remain unchanged until Stages III-IV. Primary tumor and metastases can be detected by a complex of clinical, x-ray and radioisotope methods the effectiveness of which is determined by degree of tumor extension. Dissemination of tumor at different sites was detected by primary examination in 40.5% and at later stages in 15% of patients. Most metastases (96%) were detected within the first 12 mo of therapy. They were significantly more frequent at Stage III and their frequency was in correlation with the patient's age at the time of tumor detection. Out of 388 cases, 112 (28.9%) survived for more than 3 yr, Stage II -57.1; Stage III -25.4 and Stage IV -4.6% included. 1.5-2 yr-long courses of pre- and postoperative polychemotherapy proved to be effective, whereas in cases of Stage III tumor they should be supplemented with irradiation of primary tumor, its bed, regional lymph collectors and metastases. These measures ensured a 3-yr survival in 69.5% of Stage II patients and in 32.3% of Stage III patients. (Author abstract) (no Refs) (In RUS)

5. WILMS' TUMOR. A REVIEW.

D'Angio GJ

Children's Cancer Res. Center, Children's Hosp. Philadelphia, Philadelphia, PA

Cancer Bull; 34(3):104-107 1982

National Wilms' Tumor Study (NWTS) investigations are reviewed. Data concerning bilateral Wilms' tumors were collected and reported. Twenty-six of 30 patients survived after treatment by a variety of means that did not always include surgical removal of tumor-bearing tissues. Thiry-one adults (17-63 yr old, av 29 yr) with Wilms' tumor were identified. Twenty children (14 mo-19 yr old, av 12 yr) were gathered through NWTS. Stage and age appeared to be important prognostic factors. Seven of the 10 patients with Stage I or II disease survived disease-free for 2 or more yr. (6 Refs)

6. ECTOPIC PRODUCTION OF ACTH BY WILMS' TUMOR.

Pombo M, Alvez F, Varela-Clves R, Iglesias-Diz JL, Martinon F, Castro-Gago M, Pena J
Unit Pediatric Oncology and Growth, Departamento de Pediatrics, Hosp. General Galicia, Santiago de Compostela, Spain
Horm Res; 16(3):160-163 1982

The authors present the second documented case of Wilms' tumor associated with the ectopic ACTH syndrome. This is a 7 1/2-yr-old girl who, on examination at the time of admission, had the classical cushingoid appearance. A large hard mass was palpable in the right side of the abdomen. Hormonal assays were consistent with Cushing's syndrome; the serum ACTH levels were extremely high. After surgical removal of the mass, we suspected a Stage I Wilms' tumor; this was confirmed by histopathological studies. After surgery, the girl quickly lost her cushingoid appearance and weight excess. Postoperative serum ACTH levels were normal. Ectopic hormone syndromes associated with tumors in childhood are discussed as well as the possible mechanism involved in the ectopic production of ACTH. (Author abstract) (13 Refs)

7. MASSIVE BILATERAL NEPHROBLASTOMATOSIS IN A 13-YEAR-OLD GIRL.

Pichler E, Jurgenssen OA, Balzar E, Pinggera WF, Wolf A, Wagner O, Reinartz G, Czembirek H, Syre G
Universitatskinderklinik Wien, Wahringer Gurtel 74-76, A-1090 Wien, Austria
Eur J Pediatr; 138(3):231-236 1982

A 13-yr-old girl had massive bilateral nephroblastomatosis unaccompanied by Wilms tumor, which went unrecognized initially, resulting in aggressive therapeutic management. The first time the patient was seen, nausea and vomiting had led to appendectomy, but symptoms continued, and massive bilateral renal masses were found. Selective renovascography led to a diagnosis of polycystic renal disease; this view was supported by sonography. Removal of both enlarged and grossly lobulated kidneys was performed; bisection revealed innumerable homogeneous lobulated nodules consisting of tumor cells characterized by uniform round nuclei and scanty cytoplasm. The tumor was originally diagnosed as benign, but finally was diagnosed as massive bilateral nephroblastomatosis. Four months after nephrectomy hard subcutaneous and intramuscular nodes developed in the inguinal regions and in both thighs. Progression was rapid over 2 wk. Microscopically the structure of these nodes was identical to the kidney tumor. Chemotherapy with actinomycin D, vincristine, and adriamycin, followed by renal transplant 10 mo after cessation of chemotherapy, resulted in freedom from disease and good health greater than 3 yr after initial presentation. The occurrence of nephroblastomatosis has rarely been reported in children over 2 yr without coexistence with Wilms tumor. In spite of the patient's age in the present case, a diagnosis of superficial diffuse late infantile nephroblastomatosis is appropriate. Early recognition is essential to avoid aggressive management. (45 Refs)

8. CYSTIC NEPHROMA: MORPHOLOGIC SPECTRUM AND IMPLICATIONS.

Gonzalez-Crussi F, Kidd JM, Hernandez RJ
Dept. Pathology, Children's Memorial Hosp., Chicago, IL, 60614
Urology; 20(1):88-93 1982

Among 216 primary renal tumors collected from a pediatric population in metropolitan Chicago, 6 instances corresponded to multiloculated cystic masses conforming to the diagnostic criteria of so-called cystic nephroma. Histopathologically, the component tissues were entirely mature in two cases, but in the remaining four the septa between cysts contained variable amounts of primitive or embryonic tissues; in one of these, a grossly visible mass formed a nodule of typical Wilms tumor. Our experience agrees with previous reports that favor closer structural similarity of these lesions to nephroblastoma than to any known forms of cystic malformation. This concept has important consequences on the therapeutic approach to preoperatively diagnosed multilocular cystic masses of the kidney, and supports the idea that nephrectomy is the treatment of choice. Metastases or local recurrence have not been reported in cases of cystic nephroma. (Author abstract) (18 Refs)

NEUROBLASTOMAS AND CNS TUMORS

9. CT OF NEUROBLASTOMAS AND GANGLIONEUROMAS IN CHILDREN.

Armstrong EA, Harwood-Nash DC, Ritz CR, Chuang SH, Pettersson H, Martin DJ
(c/o Harwood-Nash) Dept. Radiology, Hosp. Sick Children, 555 University Ave., Toronto, Ontario, M5G 1X8, Canada
AJNR; 3(4):401-406 1982

Diagnostic efficacy of computed tomography (CT) was evaluated in 67 children with neuroblastoma (NB) and in 10 children with ganglioneuroma (GN). Of 77 patients, 58 were subjected to chest, abdomen or cranium CT scan and 18 were subjected to CT metrizamide myelography. Of 58 children subjected to CT alone (32 boys, 26 girls), 51 had NB (mean age of onset of 2.7 yr) and 7 had GN (mean age of onset of 7 yr). Chest and abdomen CT showed calcification of 25% of chest lesions and of 43% of abdominal lesions. Calcification was observed in 40% of NB and in 20% of GN. Three patients subjected to cranial CT were found to have extradural involvement and the metastatic intraorbital NB. Chest CT demonstrated the primary tumor or metastatic spread of the abdominal tumors. Abdominal CT demonstrated the tumor spread or the presence of liver metastases. CT metrizamide myelography showed intraspinal extension in 11/77 patients (2 had GN and 9 had NB). (24 Refs)

10. MEDULLOBLASTOMAS.

Choux M, Lena G, Alfonsi S, Bernard J, Pinsard N, Rigaud F, Clement R, Elbaze F, Gambarelli D, Raybaud C, Ruffo M, Hasseun J, Lerpiniere J, Lucas C, Raybaud C, Tapounie E
C.H.U. La Timone, Marseille, France
Neurochirurgie; 28(Suppl1):229pp. 1982

A report on 113 series (6,024 cases) of medulloblastomas (MDB) based on literature data is presented. MDB accounts for 3.74% of all tumors of the CNS. MDB are most commonly found in pediatric cases (74.6%), particularly in children under 5 yr (36.9%) with a major peak at 6 yr. In 66.10% of cases, MDB are located in the midline when they are found in the posterior fossa. MDB may either be circumscribed or disseminated, and cystic change is not uncommon. Neuroradiological investigations are essential in the diagnosis of MDB. Computed tomography scanning is the basic procedure for the evaluation of the intracranial lesion in more than 90% of the cases, with an exact evaluation of the tumor location in 75% of the cases. Treatment of MDB includes surgical biopsy, palliative operations, and tumor resection. Radiotherapy of MDB is based on the radiosensitivity of in vivo tumors even though in vitro results have not been verified. Less favorable prognoses are

found in younger children, in girls, and in patients with hemorrhagic MDB, large tumors, midline tumors, or brain stem involvement. Total tumor resection is a favorable prognostic factor especially in children. (756 Refs) (In FRE)

11. INFANTILE SMALL CELL GLIOMAS.

Friede RL, Janzer RC, Roessmann U
Dept. Neuropathology, Univ. Gottingen, Robert-Koch-Strasse 40, D-3400 Gottingen, W. Germany
Acta Neuropathol (Berl); 57(2/3):103-110 1982

Fourteen juvenile patients (6 male, 8 female) with small cell gliomas were studied in two institutions on two continents. The age at onset of symptoms varied from 10.5 mo to 20 yr, av 9 yr. Interval between onset of symptoms and diagnostic intervention (when done) was 3 wk to 15 mo (av 5 mo). Presenting symptoms depended upon anatomic localization. Most tumors arose in the diencephalon or brain stem and were composed of a poorly differentiated small cell component having a pronounced tendency to differentiate into a glioma. The tumors spread easily throughout the CNS. Electron microscopy revealed signs of neuroblastic differentiation. One surgically treated patient was not available for follow-up. One patient was still alive 15 mo after surgery without apparent recurrence. The other patients died within 1 yr of surgical intervention. Longest survival between onset of symptoms and death was 21 mo in a patient who had not undergone surgery. The designation 'infantile small cell glioma' overlaps both the 'metastasizing gliomas in young subjects' of Eade and Urich, and with the primitive neuroectodermal tumor of infancy of Hart and Earle. (13 Refs)

12. MINIMAL TOXICITY AND ANOMALOUS DRUG KINETICS IN A PATIENT RECEIVING HIGH-DOSE METHOTREXATE.

van Eys J, WangYM
Dept. Pediatrics, M. D. Anderson Hosp., Houston, TX
Cancer Bull; 34(3):120-122 1982

Minimal toxicity was observed in a 10-yr-old Latin American boy treated with high-dose methotrexate (MTX) for a thalamic glioma. The boy was diagnosed as having a right pontine thalamic glioma on the basis of left-sided facial weakness and left hemiplegia. At no time during therapy did the boy exhibit skin, liver, or gastrointestinal tract toxicity, although prolonged MTX blood levels were observed. The renal function never deteriorated further. MTX therapy was discontinued after observing disease progression. (5 Refs)

LYMPHOMAS AND LEUKEMIAS

13. PROGNOSTIC SIGNIFICANCE OF TERMINAL TRANSFERASE ACTIVITY AND OTHER FACTORS IN CHILDHOOD ACUTE LYMPHOBLASTIC LEUKEMIA.

Hutton JJ, Coleman MS, Moffitt S
Dept. Medicine, Univ. Texas, San Antonio, TX
Adv Exp Med Biol; 145:243-257 1982

Activity of terminal deoxynucleotidyl transferase (TdT) was measured in cells from the bone marrow and peripheral blood of 206 children (less than 1-16 yr old, av 77 mo) with acute lymphoblastic leukemia (ALL) to investigate the prognostic significance of the quantitative variations in level of TdT at diagnosis and to find out whether quantitative measurements of TdT activity during remission of leukemia can predict relapse of disease. Complete remission (CR) was obtained in 96% of patients, and 43% relapsed during the course of the study. The median duration of CR was 1,400 days. Maintenance chemotherapy was generally continued for 3 yr after complete remission was achieved or until relapse occurred. The mean TDT activity in the bone marrow of 157 patients was 91 +-143 units (U)/10(8) cells. For peripheral blood the mean activity was 54 +-159 U/10(8) cells of 163 specimens. The large standard deviation reflects the wide range of activities seen in patients with ALL. A significant proportion of the variation was due to a relatively small number of patients with extremely high activities. The bone marrow from 198 children without ALL contained 5.9 U of TdT activity/10(8) cells with a standard deviation of TdT measurements could not be used to predict malignancy because significant overlap of the two groups was observed. Results showed that the quantitative activity of TdT in blasts at diagnosis of children with typical ALL does not convey prognostic information. (5 Refs)

14. HYPERGONADOTROPIC HYPOGONADISM, SHBG DEFICIENCY AND HYPERPROLACTINAEMIA: A TRANSIENT PHENOMENON DURING INDUCTION CHEMOTHERAPY IN LEUKEMIC CHILDREN.

Beck W, Schwarz S, Heidemann PH, Jentsch E, Stubbe P, Konig A
Dept. Paediatics, Univ. Gottingen, Humboldtallee 38, D-3400 Gottingen, W. Germany
Eur J Pediatr; 138(3):216-220 1982

Hypothalamo-pituitary-gonadal function was evaluated in five pubertal boys (16-19 yr old) and four prepubertal girls with acute lymphoblastic leukemia before and during (day 10, 21 and 28) and 23 days after the induction phase of treatment with vincristine (VCR), daunorubicin (DAU), L-asparaginase (ASP), and prednisone (PR). After 3 wk of therapy, plasma testosterone and estradiol levels decreased while both boys and girls showed decreased binding capacity of sex-hormone-binding globulin. Testicular volume in boys also was decreased. At the same time basal luteinizing hormone (LH), follicle stimulating hormone, and prolactin values doubled with a normal gonadotropin response to LH releasing hormone. The prolactin response to thyrotropin-releasing hormone increased at the end of the induction phase, when treatment with VCR, DAU, and ASP were discontinued, while PR was continued for 7 days. All hormonal values, and testicular volume in boys, became normal within a period of 3 wk after induction therapy, despite continued therapy with other antileukemic agents and radiotherapy. The mechanisms involved in these hormonal and gonadal changes are discussed. (35 Refs)

15. CHEMOTHERAPY DOES NOT AFFECT THE DEVELOPMENT OF INTER-SERTOLI JUNCTIONS IN CHILDHOOD LEUKAEMIA.

Camatini M, Franchi E, De Curtis I, Anelli G, Masera G
Lab. Comparative Anatomy, Univ. Milan, Via celoria 10, 20133 Milan, Italy
Anat Rec; 203(3):353-363 1982

The inter-Sertoli junctions of children aged between 5 and 12 yr, affected by acute lymphoblastic leukemia, were analyzed in sections and freeze-fracture replicas. The testicular biopsies were performed at the end of therapy, when patients were in continuous remission for over 30 mo. Chemotherapy does not seem to affect the development of junctions that were studied in sections and freeze fracture. Two age groups were considered (I, 5 to 8 yr; II, 9 to 12 yr). In age group I oval Sertoli

cells were connected by occasionally focal points of fusion, which in replicas appeared as scattered, interrupted ridges on the P face and grooves on the corresponding E face. In age group II Sertoli cells presented cytoplasmic extensions and interdigitations. Tight junctions appeared close to one another in conventional sections. Freeze fracture evidenced extensive although isolated areas formed by intervening strands. Lanthanum penetrated freely the intercellular spaces and gap junctions were observed in both age groups. The results suggest that tight junctions formation is initiated long before puberty; a progression in the complexity of the strand organization is present as the tubules mature; the strands reorganize in parallel and continuous rows only at puberty. (Author abstract) (38 Refs)

16. PELVIC AND OVARIAN EXTRAMEDULLARY LEUKEMIC RELAPSE IN YOUNG GIRLS. A REPORT OF FOUR CASES AND REVIEW OF THE LITERATURE.

Cecalupo AJ, Frankel LS, Sullivan MP
(c/o Frankel) Dept. Pediatrics, M. D. Anderson Hosp. and Tumor Inst., 6723 Bertner Ave., Houston, TX, 77030
Cancer; 50(3):587-593 1982

Currently attention is focused on the testicle as a site of leukemic relapse. Leukemic involvement of the ovary has been described in several autopsy series with an incidence of 11-50% in patients with bone marrow relapse, but has rarely been reported during the clinical course of leukemia. In this report, four girls with childhood acute lymphocytic leukemia (ALL) who relapsed with a pelvic mass are presented. Three had marked ovarian infiltrates and the fourth had a presacral mass without ovarian disease. Involvement was also present in abdominal and pelvic lymph nodes, mesentery, omentum, and serosal surfaces. Two patients had infiltrates of the fallopian tubes and one had uterine involvement. Two patients had central nervous system disease and one patient had renal involvement at the time of relapse. Relapse occurred late in the course of disease. All patients had been in complete continuous remission prior to relapse. Retreatment was instituted in all patients and follow-up ranges from 18-135 mo from the time of pelvic relapse. All patients have maintained continuous bone marrow remission from the time of initial diagnosis, and one patient died 18 mo after ovarian relapse with significant extramedullary disease but no marrow involvement. This represents the first series of pelvic extramedullary leukemic relapse in females, an area of involvement that may be encountered more frequently in the future. (Author abstract) (42 Refs)

17. TREATMENT OF GENERALIZED HODGKIN'S DISEASE IN CHILDREN.

Vialushkin BIa, Koshel' IV, Tsyplenkov VG
Inst. Pediatrics, Moscow, USSR
Pediatriia; (6):49-52 1982

Results of treatment of 81 children (3-15 yr old) who had generalized Hodgkin's disease (HD) are reported. Twenty-one of these patients were in Stage IIIA, and 60 were in Stage IIIB; 9 had lymphoid predominance, 11 had nodular sclerosis, 49 had mixed variant, and 12 had lymphoid depletion. Prior to chemotherapy, the patients were subjected to exploratory laparotomy with splenectomy, biopsy of enlarged lymph nodes, and marginal liver biopsy. Histological examination showed spleen involvement in greater than 70% of the patients. Induction therapy included administration of cyclophosphamide (600 mg/square meter, iv, days 1 and 8), vinblastine (15 mg/square/meter, iv, days 1 and 8), procarbazine (100 mg/square meter, po, daily), and prednisone (40 mg/square meter, po, daily). The patients received six 2-wk courses of the polychemotherapy with 10-14 days between the courses. Complete remission was achieved in greater than 95% of the patients. Maintenance therapy included distance gamma irradiation (3,500-4,500 rads to the primary focus and 3,200-4,000 rads to zones of regional metastatic spread). The 5-yr survival rate was 92.7%; 54.6% of the patients were free of recurrences. (no Refs) (In RUS)

18. PHARMACOKINETICS AND BIOCHEMICAL EFFECTS OF A FATAL INTRATHECAL METHOTREXATE OVERDOSE.

Ettinger LJ
Div. Hematology/Oncology, Childrens Hosp. Los Angeles, 4650 Sunset Blvd., Los Angeles, CA, 90027
Cancer; 50(3):444-450 1982

A 9-yr-old boy with non-Hodgkin's lymphoma inadvertantly received 54x the standard dose of intrathecal methotrexate (650 mg vs 12 mg). He sustained an immediate and subsequently fatal necrotizing leukoencephalopathy despite an early cerebrospinal fluid exchange, intravenous leucovorin and dexamethasone, and supportive care. Following the CSF exchange which removed 78% of the administered dose of methotrexate, the CSF and serum methotrexate levels were 50-100-fold higher than seen following standard therapy. A slightly prolonged CSF methotrexate half-life suggested a decreased rate of clearance of methotrexate from the CSF, either due to saturation or destruction of the transport mechanisms. CSF levels of myelin basic protein and serum levels of lactic dehydrogenase, serum glutamic pyruvic transaminase, serum glutamic oxaloacetic transaminase, and uric acid were all markedly increased, suggesting both white and grey matter necrosis. (Author abstract) (31 Refs)

19. THE IMPORTANCE OF T-LYMPHOCYTES IN CHEMOTHERAPY OF LYMPHOID MALIGNANCIES IN CHILDREN.

Kadagidze ZG, Makhonova LA, Tabagari DZ, Zhogoleva IB, Mayakova SA, Susuleva NA
Center for Oncology Res., USSR Acad. Medical Sciences, Moscow, USSR
Vopr Onkol; 28(5):104-109 1982

The levels of T-lymphocytes in untreated lymphoid malignancies in children and those after different schemes of chemoimmunotherapy were compared. The ratio of T-helper and T-suppressor cells changed in the course of treatment in correlation with the chemotherapeutic effect: the fraction of Tmu cells practically did not change whereas the Tgamma cell fraction decreased considerably in patients who revealed a good response to therapy. BCG treatment stimulated both populations but the response of Tgamma cells was stronger. Transplantation of thymus was followed by an increase in Tmu cells. (Author abstract) (22 Refs) (In RUS)

20. PEDIATRIC COOPERATIVE TRIAL GROUPS IN THE EIGHTIES. CHALLENGES AND OPPORTUNITIES.

van Eys J, Vietti TJ, Taylor HG, Pediatric Oncology Group
Dept. Pediatrics, Univ. Texas M. D. Anderson Hosp. and Tumor Inst. at Houston, Houston, TX
Cancer Bull; 34(3):117-120 1982

The Pediatric Cooperative Trial Group (PCTG) is discussed with respect to historical aspects, processes, value as a tool for developing curative therapy, current reality, and future prospects. Two major contributions of the PCTG were the devel-

opment of criteria for the evaluation of response to therapy and the emergence of the biostatistician as an integral part of the group. A tabulation of published studies of single agents for leukemia in pediatrics showed that 38 drugs were studied in 46 studies, with six duplications of drugs in 2 studies and 2 drugs in 3 studies each. Ten of the 38 drugs were 'promoted ' to combination therapy, 21 were rejected, 4 were effective but not used, and 3 were still under investigation. Many more children were exposed to effective agents than to ineffective agents through the study approach assuming that new drugs could be systematically tested for spectrum of effectiveness, when found effective could be incorporated into multidrug protocols, and the optimization of outcome could be achieved through stepwise comparisons of alternative protocols. Development of the frontline leukemia study 'Acute Leukemia in Children Study 13' in the Pediatric Oncology Group was complex but the process succeeded. A new subgroup of leukemia was defined and therapy became targeted to phenotype at presentation. (9 Refs)

21. CHILDHOOD ACUTE LYMPHOBLASTIC LEUKAEMIA: A REVIEW.

Willoughby ML
Dept. Haematology, Royal Hosp. for Sick Children, Yorkhill, Glasgow G3 8SJ, Scotland
J R Soc Med; 75(6):464-473 1982

Management, prognostic factors, long-term side effects of treatment, and outstanding problems in the treatment of acute lymphoblastic leukemia (ALL) in children are reviewed. The basic plan of therapy of ALL involves induction of initial complete remission, preventive therapy against development of CNS infiltration, and multi-drug maintenance chemotherapy for an extended period in the hope of eradicating all leukemic cells or progenitors. The height of WBC, or of the circulating blast cell count, at diagnosis has come to be the most widely-used single prognostic factor stratifying above or below 20,000/cubic mm, or in more recent United States trials, at 10,000 and 50,000. (82 Refs)

22. ACUTE LYMPHOCYTIC LEUKEMIA IN CHILDHOOD.

Alvarado CS, Kim T, Ragab AH
(c/o Ragab) Section Pediatrics, Emory Univ. Clinic, 1365 Clifton Road, N.E., Atlanta, GA, 30322
J Med Assoc Ga; 71(4):289-292 1982

Diagnosis, classification, prognostic factors, management, improved survival, and new directions in the treatment of acute lymphoblastic leukemia (ALL) in childhood are discussed. The diagnosis of ALL is often suggested by an abnormal blood count, but can be only firmly established or discarded by a bone marrow aspirate. The differential diagnosis includes four main entities. The prognostic value of immunologic subsets is demonstrated by the positive correlation with clinical and laboratory features associated with prognosis. The improved results in the treatment of ALL are in part due to the progress made in the area of chemotherapy and supportive care. (10 Refs)

OTHER SOLID TUMORS OF CHILDHOOD

23. THE DIAGNOSIS AND TREATMENT OF SALIVARY GLAND TUMORS IN CHILDREN.

Simovic S
Klinika za otorinolaringologiju i cervikofacijalnu kirurgiju, Medicinski fakultet u Zagrebu, Salata, Zagreb, Yugoslavia
Liječ Vjesn; 104(1):26-30 1982

Diagnosis and treatment of benign and malignant salivary gland tumors in children are discussed with respect to hemangiomas, lymphangiomas, ranulas, pleomorphic adenomas, lymphoid hyperplasias, benign lymphoepithelial lesions, mucoepidermoid carcinomas, embryonal carcinomas, undifferentiated carcinomas, rhabdomyosarcomas, fibrosarcomas, and lymphosarcomas. Congenital hemangiomas are the most common cause of parotid swelling in the newborn. No tendency of spontaneous regression can be observed in lymphangiomas. (20 Refs) (In SCR)

24. SALIVARY GLAND TUMORS IN CHILDREN.

Barrera Muzquiz JL, Penarrieta Ruiz J, Angulo Hernandez O, Gonzalez Lara CD
Servicio de Cirugia, Hospital de Pediatria, Mexico City, Spain
Rev Med Inst Mex Seguro Soc; 20(2):145-148 1982

Salivary gland tumors were diagnosed in nine children (7 girls and 2 boys, 7-15 yr old). They included five mixed benign tumors, one hemangioma and hemangiolymphangioma each, one acinar-cell adenocarcinoma and one mucoepidermoid carcinoma. Treatment consisted of lobectomy in two patients, total resection in six and of biopsy with radiotherapy in the patient with adenocarcinoma. The long-term cure rate was 90%. (12 Refs) (In SPA)

25. PRIMARY LIVER CANCER IN CHILDREN.

Oleinik VS, Kravchenko AV, Treivas VS
Dept. Surgery, Regional Children's Hosp., Kherson, USSR
Khirurgiia (Mosk); (5):111-112 1982

The case histories of three children (newborn boy, 1-yr-3-mo-old girl, and 2-yr-2mo-old boy) with primary liver cancer are reported. The newborn died 1 day after admission. Autopsy examination showed giant mixed embryonal tumor arising from both liver lobes. The infants were seen with initial diagnosis of Wilms' tumor. Surgery showed mixed liver tumor. The patients were subjected to atypical liver resection. At follow-up examination (1 yr after surgery) both patients were alive. (4 Refs) (In RUS)

OTHER RELATED CLINICAL STUDIES

26. PROVIDING FOLLOW-UP IN CHILDHOOD CANCER.

Napolitano LV, D'Angio GJ, Grossfeld JL, Maner AM, Miller DR, Sinks LF, Peterson RD
(c/o Editor) Patient Care, 16 Thorndal Circle, Darien, CT, 06820
Patient Care; 16(13):167-169,173,176-178,180,182,187-188,190-192 1982

Consequences of therapy in childhood cancer patients are discussed. Findings indicate a drop of 10 or more points in IQ score in children who received 2,400 rad to the brain plus systemic methotrexate. Radiation and cyclophosphamide can

cause aspermia, oligospermia, amenorrhea, and, less frequently, the absence of secondary sexual maturation. Exostoses may appear after radiation therapy; these represent derangements of growth rather than benign tumors. Children who have had surgery and who have been treated with bleomycin sulfate may exhibit pulmonary problems upon re-operation. The risk of a second cancer is approx 12% 25 yr posttreatment. Various genetic clusters of diseases appear to be associated with a high incidence of secondary malignant neoplasms. Patients with von Recklinghausen's disease have a tendency to develop neurofibrosarcoma. In follow-up, the former patient is checked monthly at first, then every 6 wk, every 3 mo, and annually by the fifth yr posttreatment. More organized cooperative study follow-ups can help to define and answer some of the questions of long-term side effects of therapy. The presence of alpha-fetoprotein and human chorionic gonadotropin on laboratory assays can be considered as possible signs of germ cell tumors and hepatocellular carcinoma. Cancer 'cure' can only be defined by studying data on large numbers of patients and finding the cut-off point in time after which recurrence of the specific cancer has been highly unusual. Second-line treatment should be administered if no remission occurs and in case of relapse. (5 Refs)

27. ENDOCRINE COMPLICATIONS OF RADIOTHERAPY IN THE CHILD.

Lucas C, Garnier J
Travail du Service de Pediatrie et Genetique Medicale, Hopital d'Enfants C.H.U. de la Timone, 13385 Marseille, France
Pediatrie; 37(2):157-160 1982

The pituitary and thyroid gland are affected by radiotherapy even when the malignant tumor is not directly next to the gland. This is the case with cerebral tumors, all extracranial irradiated tumors of the head and neck, and cancers of the CNS or bone marrow. Radiation induced deficits of the pituitary may lead to growth and maturation problems. Ionizing radiation may lead to secondary, induced cancer of the thyroid. The risk of thyroid cancer is greatest in younger children exposed to radiation in therapeutic doses. (16 Refs) (In FRE)

28. A PARENT'S VIEW OF CHILDHOOD CANCER.

Labson LH, Wild E, Grosfeld JL, Mauer AM, Sinks LF, Miller DR
No affiliation given
Patient Care; 16(13):195-197,204-205,207,211-212,214,216-217,223 224,226-242 1982

A parent was interviewed who had a daughter who was diagnosed as having acute lymphoblastic leukemia at age 3 yr and who died at age 16 of acute myelomonocytic leukemia. The first observed symptoms of the disease were loss of energy, pallor, and regressive behavior. The parent's belief is that the medical team has to encourage parents gradually to resume responsibility for the child's care and that the primary care physician (PCP) can play a central role in bringing them out of their helplessness. The parent formed a parent support group. Parents should be encouraged to stay with the child who has cancer during the initial hospitalization. Parents must be truthful with even the very young child to allow the child to express hopes and fears. When illness strikes a sibling of the child with cancer, PCP must deal sensitively with the parent's inordinate fears. PCP can play a central role in keeping track of how siblings are coping with the brother's or sister's sickness. Children on chemotherapy are immunosuppressed, and a slight infection can be hazardous. An annual routine review process used at Rhode Island Hospital to provide time when parents of the child with cancer can discuss the child's condition with the oncology team is described. The team can alert parents to possible side effects of treatment or changes in prognosis. Since protocols for treatment encourage the use of aggressive therapy at the outset, fewer relapses and improved survival rates are observed. Parents may be more accepting of the impending death of a child with cancer than the doctors. Physicians have to adjust their approach to parents according to the understanding of the family members. PCP can help by notifying appropriate civil authorities in advance that the child will die at home and by explaining the dying process to the family so that they can know what to expect. (no Refs)

SELECTED ASPECTS OF ETIOLOGY, EPIDEMIOLOGY, AND CARCINOGENESIS

29. EPSTEIN-BARR VIRUS-INDUCED DISEASES IN BOYS WITH THE X-LINKED LYMPHOPROLIFERATIVE SYNDROME (XLP). UPDATE ON STUDIES OF THE REGISTRY.

Purtilo DT, Sakamoto K, Barnabei V, Seeley J, Bechtold T, Rogers G, Yetz J, Harada S, XLP Collaborators
Dept. Pathology and Lab. Medicine, Univ. Nebraska Medical Center, 42nd and Dewey Ave., Omaha, NE, 68105
Am J Med; 73(1):49-56 1982

Analyses of 100 subjects with the X-lined lymphoproliferative syndrome (XLP) in 25 kindreds revealed four major interrelated phenotypes: infectious mononucleosis, malignant B-cell lymphoma, aplastic anemia, and hypogammaglobulinemia. Eighty-one of the patients died. Two male subjects were asymptomatic but showed immunodeficiency to Epstein-Barr virus (EBV). Seventy-five subjects had the infectious mononucleosis phenotype and concurrently, 17 subjects of this group had aplastic anemia. All subjects with aplastic anemia died within a wk. Aplastic anemia did not accompany hypogammaglobulinemia or malignant lymphoma phenotypes. Hypogammaglobulinemia had been detected before infectious mononucleosis in there subjects, after infectious mononucleosis in five subjects, and was not associated with infectious mononucleosis in 11 boys with hypogammaglobulinemia. In nine subjects infectious mononucleosis appeared to have evolved into malignant lymphoma; however, the majority of patients with malignant lymphoma showed no obvious antecedent infectious mononucleosis. One subject had infectious mononucleosis following recurrent malignant lymphoma. Twenty-six of 35 lymphomas were in the terminal ileum. Results of immunologic and virologic studies of 15 survivors revealed combined variable immunodeficiency and deficient antibody responses to EBV-specific antigens. Mothers of boys with XLP exhibited abnormally elevated titers of antibodies to EBV. Subjects of both sexes with phenotypes of XLP should be investigated for immunodeficiency to EBV. Persons with inherited or acquired immunodeficiency may be vulnerable to life-threatening EBV-induced diseases. (Author abstract) (26 Refs)

AUTHOR INDEX WITH CITATION NUMBERS

Alfonsi S. 10
Alvarado CS. 22
Alvez F. 6
Anelli G. 15
Angulo Hernande. 24
Armstrong EA. 9
Balzar E. 7
Barnabei V. 29
Barrera Muzquiz. 24
Bechtold T. 29
Beck W. 14
Bernard J. 10
Bolkenius M. 3
Brandeis WE. 3
Bukhny AF. 4
Camatini M. 15
Castro-Gago M. 6
Cecalupo AJ. 16
Choux M. 10
Chuang SH. 9
Clement R. 10
Coleman MS. 13
Crist WM. 1
Crist WM. 2
Czembirek H. 7
D'Angio GJ. 26
D'Angio GJ. 5
Daum R. 3
De Curtis I. 15
Donaldson M. 2
Durnov LA. 4
Elbaze F. 10
Ettinger LJ. 18
Foulkes MA. 1
Franchi E. 15
Frankel LS. 16
Friede RL. 11
Gambarelli D. 10
Garnier J. 27
Gehan A. 2
Gonzalez Lara C. 24
Gonzalez-Crussi. 8
Grosfeld JL. 28
Grossfeld JL. 26
Hammond D. 2
Harada S. 29
Harwood-Nash DC. 9
Hassoun J. 10
Hays DM. 2
Heidemann PH. 14
Hernandez RJ. 8
Heyn R. 2
Hutton JJ. 13
Iglesias-Diz JL. 6
Janzer RC. 11
Jenisch E. 14
Jurgenssen OA. 7
Kadagidze ZG. 19
Kidd JM. 8
Kim T. 22
Konig A. 14
Koshel' IV. 17
Kravchenko AV. 25
Labson LH. 28
Lawrence W. 1
Lawrence W. 2
Lebedev VI. 4
Lena G. 10
Lerpiniere J. 10
Lindberg R. 2
Lucas C. 10
Lucas C. 27
Makhonova LA. 19
Martin DJ. 9
Martinon F. 6
Masera G. 15
Mauer AM. 26
Mauer AM. 28
Maurer HM. 2
Mayakova SA. 19
Miller DR. 26
Miller DR. 28
Moffitt S. 13
Napolitano LV. 26
Newton W. 1
Newton W. 2
Oleinik VS. 25
Pediatric Oncol. 20
Pena J. 6
Penarrieta Ruiz. 24
Peterson RD. 26
Pettersson H. 9
Pichler E. 7
Pinggera WF. 7
Pinsard N. 10
Pombo M. 6
Purtilo DT. 29
Ragab A. 2
Ragab AH. 22
Raney RB. 1
Raney RB. 2
Raybaud C. 10
Raybaud C. 10
Reinartz G. 7
Rigaud F. 10
Ritz CR. 9
Roesmann U. 11
Rogers G. 29
Roth H. 3
Ruffo M. 10
Ruymann F. 2
Sakamoto K. 29
Saltanov AI. 4
Schutze U. 3
Schwarz S. 14
Seeley J. 29
Simovic S. 23
Sinks LF. 26
Sinks LF. 28
Sotnikova EN. 4
Soule EH. 2
Stubbe P. 14
Sullivan MP. 16
Susuleva NA. 19
Sutow WW. 2
Syre G. 7
Tabagari DZ. 19
Tapounie E. 10
Taylor HG. 20
Tefft M. 1
Tefft M. 2
Treivas VS. 25
Tsygankin VI. 4
Tsyplenkov VG. 17
Van Eys J. 12
Van Eys J. 20
Varela-Cives R. 6
Vialushkin BIa. 17
Vietti TJ. 20
Wagner O. 7
WangYM. 12
Wharam M. 2
Wild E. 28
Willoughby ML. 21
Wolf A. 7
XLP Collaborato. 29
Yetz J. 29
Zhogoleva IB. 19

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